TRANSACTIONS

The Evans Museum & Dental Institute
LIBRARY
School of Dentistry University of Penna.

OF THE

AMERICAN ACADEMY OF DENTAL SCIENCE.

MARCH 21 TO DECEMBER 5, 1900.

REPRINTED FROM THE INTERNATIONAL DENTAL JOURNAL.

PHILADELPHIA:
PRINTED BY J. B. LIPPINCOTT COMPANY.
1901.

OFFICERS.

1900–1901.

PRESIDENT.

DR. V. C. POND.

VICE-PRESIDENT.

DR. GEORGE F. EAMES.

RECORDING SECRETARY.

DR. FRANK PERRIN.

CORRESPONDING SECRETARY.

DR. GEORGE H. PAYNE.

TREASURER.

DR. WILLIAM Y. ALLEN.

LIBRARIAN.

DR. H. HICHBORN.

EDITOR.

DR. C. H. TAFT.

EXECUTIVE COMMITTEE.

DR. FREDERICK BRADLEY. DR. F. G. EDDY.

DR. THOS. FILLEBROWN.

445064

AMERICAN ACADEMY OF DENTAL SCIENCE.

A UNION meeting of the New York Institute of Stomatology and the American Academy of Dental Science was held at Hotel Somerset, Boston, on the evening of March 21, 1900.

There were present sixteen members of the Institute and twenty-eight members of the Academy. The following gentlemen were also present as guests of the Academy: President C. W. Eliot, of Harvard University; Hon. J. J. Myers, Speaker of the Massachusetts House of Representatives; Rev. Dr. George A. Gordon, pastor of the Old South Church; Professor C. S. Minot, of the Harvard Medical School; and Harold Williams, M.D., Dean of Tufts College Medical and Dental Schools.

An hour of social intercourse was spent in the parlors of the hotel, after which a banquet was served, and an address of welcome delivered by Vice-President George F. Eames, of the Academy.

President Eliot was then introduced, and delivered a short address upon "The Newness of Dentistry."

THE NEWNESS OF DENTISTRY.

BY CHARLES W. ELIOT, LL.D.[1]

MR. PRESIDENT AND GENTLEMEN,—The coming together of these two societies is interesting to me, because I find the same sort of thing going on all over the country, in all branches of education, and in all the professions, scientific and learned. It is a new phenomenon, this rapid formation of sympathetic and co-operative societies. I have seen it within ten days in a new departure among the American universities. In Chicago, delegates from fourteen universities decided that they would begin the establishment of an Association of American Universities. We have never had such a thing before. We do not know exactly what will come out of it; but we are sure, those of us who took part in this beginning, that we shall gain through the co-operation of American universities an influence which the separate institutions would never have been

[1] President of Harvard University.

able to exert. Just so, in the various recent societies which have been formed in this country in each of the learned and scientific professions, the co-operation of men of the same calling in different parts of the country, through societies which have common objects though perhaps different local problems, is, I believe, a new sign of progress.

The President has indicated the subject to which my name is attached in the programme, "The Newness of Dentistry." It is, I believe, the newest of the callings which require a high degree of knowledge and technical skill. It has taken advantage in the most rapid way of many of the most recent discoveries in chemistry, physiology, physics, and mechanical engineering. It has taken advantage of many of the interesting novelties in metallurgy and in the application of different combinations of metals. It has profited by the innumerable inventions and discoveries into which India rubber and gutta-percha enter. The laboratory of a dental practitioner to-day seems to me to be an epitome of applied chemistry, physiology, bacteriology, metallurgy, engineering, and physics, to which we must add the latest improvements in surgery. I need but to enumerate these topics to show, in the first place, what a wide range of knowledge a dentist needs; secondly, what various skill he needs; and, thirdly, how new almost all his means and methods must be, because these sciences on which he relies are new to the world. A dentist, then, is a pioneer in the application of science; and he is a pioneer in a large region, because he relies upon the exact physical sciences quite as much as upon the sciences which are grouped under the general name of Natural History. He has a great field.

I remember, when the Dental School was first organized in Harvard University, that some of the advisers of the Corporation said, "Dentistry is too small a subject for a real profession,—it only deals with the mouth. It has too small a field for a university school." Fortunately, this somewhat narrow doctrine did not prevail, but it was warmly maintained in the discussion which preceded the foundation of our Dental School. It never seemed to me to be well founded. When we imagine treating with success any part of the human body, do we not invariably find it difficult to define the limits of the knowledge and skill which may be useful in that treatment? The specialists of the body, the specialists of any part of the body, need to be thoroughly informed men. If they are not,

they cannot have the highest success in their specialties. It must be so in dentistry; yet it must be confessed that this is a comparatively new view of dentistry. Here again we have one of the aspects in which dentistry is a new profession.

In one respect our country has failed in its treatment of the dental profession. The dental schools taken together have not insisted upon a good education before the professional training was entered upon. This defect of dental education in our country is, I believe, due to a too limited view of the function of the dentist after he has entered upon his profession. I should be glad to think that these two societies would contribute to remedy this evil. I have been much impressed, during the striking development of the medical profession within the last thirty years in this country, with the great importance of the combined sentiment of medical men towards the reform and improvement of their profession; and I believe that a similar influence can be relied on for the improvement of the profession of dentistry. We can rely upon the dentists' interest in their calling to elevate the standard of the preliminary education for the profession.

The confidence of the community in the profession, and particularly the interest of the medical profession in the calling of the dentist, would, I think, be promoted if the dental profession as a whole entered more than it does into the problems of medical investigation. The dentist seems to me to have some remarkable facilities for contributing to the progress of preventive medicine. I remember that forty-five years ago or thereabouts, being in Richmond, Va., one day, I went into the slave market, curious, as a Northerner might naturally be, to see how men, women, and children were bought and sold; and I watched the auction for an hour or more. The first thing that struck me was the reliance placed by the purchasers upon the examination of the teeth. Everybody who is buying a horse or a dog looks at the teeth, partly for the determination of age, but also to determine the probable constitution and vigor. That is just what the buyers did to human beings in the Richmond slave market. Now, a dentist who practises for forty years sees, or may see, three generations of the same family; and if it were the habit of the profession to record the facts about the teeth of these generations, and the evidence the teeth give concerning diet and health habits, should we not learn something valuable about diet and the effects of different diets upon the constitution of

the human creature? Surely we desperately need information on that subject.

My attention was drawn to this subject many years later, when I became pretty well acquainted with the population of the coast of Maine. I used to go yachting along that coast every summer; and the pleasure of yachting is being in with the land. The ocean is all very well; but one wants to go into harbor every night to have a quiet anchorage and see a new place. Therefore, I visited the villages all along the coast and up the rivers; and I was very much struck with the bad condition of the teeth of the young people. The generation preceding had very good teeth. If the slave market had prevailed along the coast of Maine in the last twenty-five years, the purchasers would have had very great difficulty in determining the value of the young men and women put up for sale; for their teeth were gone. What was the cause of this ruin? I believe it rested entirely upon the change in the diet of the population which resulted from the importation into Maine of fine white flour, —the finest possible white wheat flour was what the native bought, and he added to that sugar and what he called sauce, and, with doughnuts and sweet cakes, these were his staple foods. Now, it did not take more than twenty or twenty-five years of this diet to change the teeth of the population very much for the worse. The previous generation used the wheat raised on their own farms and ground at the neighboring mill; and so they ate the whole wheat. I mention this simply to illustrate what I believe would be the very valuable contribution which dentists might make to our knowledge of the safe diet for a population become largely urban. I think we ought to hope to receive from the dental profession as a whole important contributions to medical research, and to our knowledge of the human body in health, and of the conditions under which health may be preserved.

The dental profession uses many new materials, new methods, and new powers, and I think may justly be described as new within a hundred years, perhaps within fifty years; but sometimes I think everything has been made new within the century now drawing to its close. A Chicago man was telling me the other day, when I mentioned certain slightly barbaric features of the city, that a few leading citizens had had to create everything in Chicago within the last fifty years. Fifty years ago it was nothing but a mud-hole, and now it was a great city; and a comparatively small number

of men had created all the institutions of the place. I asked him if he supposed that Boston differed from Chicago in that respect. He said he did; but I replied, "There is not a thing in Boston that has not been made over root and branch within forty years; our water supply, our sewerage system, all our means of heating and lighting, and all our methods of transportation,—everything has been made over in the city of Boston." If you look abroad over the country, and see the condition of our government, of our schools and colleges, of our public institutions, our hospitals, libraries, and churches, they are either new or have been made over. The extreme novelty of all the grave problems that press upon our communities is, I believe, the fundamental reason why we have such great difficulty in dealing with them.

One of the great changes in the last twenty years is the rush of our populations into cities and towns. That is a change that has affected strongly the practice of dentistry. Dentistry is an art for an urban population, and our population becomes more and more urban. It is an art that is exercised chiefly for the benefit of the well-to-do, though we are all happy to see that the long-established usage of the medical profession, the giving of a large portion of the time of medical men to gratuitous practice, is taking a strong hold among dentists.

If, then, the dental profession is new, it shares this quality with almost all other human interests. I look forward with confidence to rapid and important progress in the profession which you represent here so honorably. Indeed, I have personally seen such rapid advance, so many new fields conquered within the last thirty years, that I should be faithless, indeed, if I did not anticipate with confidence a vigorous development in the future.

"Dentistry in its Relation to Medicine" was the subject assigned upon the programme to Dr. George S. Allan, of New York.

DENTISTRY IN ITS RELATION TO MEDICINE.

BY DR. GEORGE S. ALLAN, NEW YORK.

Mr. President and Gentlemen,—There are two topics, near to my heart and closely related, that I wished to hear mentioned: First, the enactment of laws compelling dentists to graduate as M.D.'s; second, the purification of our literature from trade influences. I regret that they have received so little attention.

A word in reference to the toast to which President Eliot so ably and thoughtfully responded. My respect for President Eliot and appreciation of the good work he has done in our cause are surpassed by that of no one here present. So, though you may, and quite likely will, question my judgment, you may not doubt my sincerity. But the wording of the toast strikes me unpleasantly,—"The Newness of Dentistry." Dentistry is not a new calling. History, ancient and modern, is full of references to it, quite as much so as to medicine in general.

Dentistry as a science, an art, or a profession has certainly rapidly advanced in late years. So has medicine. So has every specialty in medicine. All have shown a quickened life, a rapid advancement, and in about equal degrees. Dentistry is as old as the time when man had a body, and that body was subject to troubles, diseases, and torments. When Medicine(?) took the helm and said that she would attempt to alleviate these pains and sufferings, she did not say that she was going to take charge of one part of the body and not another part; that one part could be neglected and another part have close attention paid to it. The body and all that pertains to it, the mouth and the organs within it, are a most essential part of this connected whole. To be sure, dentistry occupies very peculiar relations to medicine in that its life and growth have not been connected with the parent profession. Dentistry is just as much a part of medicine as any other specialty; therefore I do not like the title, "Dentistry is New." Dentistry is simply seeking its rights. It wants to go where it belongs as an integral part of the medical profession, and never will it be properly represented until it is recognized as such the world over. I know it is difficult to amalgamate it. It commenced its course outside of the medical profession, and it is now seeking its proper position. Medical schools did not incorporate it as a part of their curriculum. They did not teach the dental art, the dental science; they did not lay stress upon the dental organs, the organs of the mouth and all that relates to them. It is a most absurd thought that it can stand alone. To proclaim this idea is to state its impossibility. Dentists must have a thorough knowledge of medicine, and just as thorough a knowledge of medicine as general practitioners or those devoted to any other specialty. So when I hear this sort of talk, that we are a profession of ourselves, it angers me; it is not so.

I would like very much to have heard something said to-night on how to bring about that amalgamation of dental instruction with the instruction that is given to those who intend to practise medicine as a whole. I know a great many of my brethren who insist upon a separate dental college. I hold that this is radically wrong. The dental practitioner must start in to take his medical course and branch off when the proper time comes to take his specialty. I do not know how it is to be done, but it seems to me the proper way to go to work is to insist upon the medical colleges in their course of instruction giving special courses; in other words, the man who is to practise any specialty in medicine should be obliged to take the medical course as a whole for one, two, or three years, and then to have special instruction in whatever branches he chooses to take up. I do not know of any other way in which it can be done, but that the day will come when that, or some other equally practical course, will be adopted, I have no doubt.

We have had a most enjoyable and instructive evening. When you gentlemen come to New York I have not the slightest doubt but that all the members of the Institute will extend you a most cordial reception, and if we do not give you as good a time as you have given us, it will not be the fault of our intentions, it will be because we cannot do it, that New York does not afford the opportunities.

Professor Minot took for his theme "The Union of Dental and Medical School."

THE UNION OF DENTAL AND MEDICAL SCHOOL.

BY DR. C. S. MINOT, BOSTON, MASS.[1]

Mr. President and Gentlemen,—Being a Bostonian, I am always coming to the Common, and I am struck with the sandwich men. These gentlemen, as you know, have going before them and coming behind them parts in which the public is supposed to be interested, and which are worthy of your attention. The man himself is worthy of no consideration whatever, and I feel to-night as a sort of a sandwich man. Those who came before me you

[1] Professor in Harvard Medical School.

have attended to, and those who come after me you should attend to. I am the sandwich man.

One speaker to-night seems to have omitted something I expected him to say,—that is, my honorable friend, the Speaker of the House, Mr. Myers, who privately informed me that he regarded the Democratic party as a case of caries on the tooth of time. I have been fortunate in my situation in one respect, in that I receive confidences. I am merely the sandwich or middle man. My neighbor on my right has informed me that he is the end man, and that he will make all the good jokes of the evening. You need not, therefore, expect me to be anything but serious and uninteresting.

I am very glad personally that President Eliot has found it necessary to withdraw from our meeting, because that gives me more freedom than I would otherwise have felt in speaking of his contribution to the welfare of the dental profession. It seems to me there is no man to whom the dental profession is in greater debt than to President Eliot. It was to his initiative that was due the foundation of the Harvard Dental School, and he has followed up his interest in it, and he alone is responsible for the first suggestion of the change which leads to the topic upon which I have the honor to speak, the consolidation of, and the establishment of intimate relations between, our Dental Schools and our Medical Schools.

I cannot go along any of our streets in Boston without seeing here and there those curious square posts wound around with stripes of black and white. They recall the history of the application of mechanical treatment to human suffering. Every barber's pole is a record held up, for every passer-by to see, that surgery, one of the most important and dignified branches of medicine, started in a most humble fashion. It was a mere collateral occupation of the barber, and from that humble, unpromising beginning the surgical work of the profession has risen to the wonderful dignity of to-day. These facts must give much encouragement to the members of the dental profession. The dentists, like the surgeons, started as people who applied a mechanical treatment to the human body, and I believe that as the surgeon has risen to a recognized position as a person of the highest attainments, worthy to rank side by side with the men of the greatest learning of any profession, so too the dentist should rise from the beginning as a mechanical practitioner to one who is completely a member of the medical pro-

fession. I think hardly too much can be urged in this way, because the gain which stands before us is so very great. If we can bring up the dental profession to that point in which it shall take its legitimate position, we shall have done a very great service indeed. Dentistry, viewed in its proper light, is not something which is mere mechanics. Every dentist here, I believe, shares with me the conviction that dentistry should be something more scientific, more learned, than the mere mechanical treatment of caries of the teeth. It is a profession which requires a great deal of scientific knowledge. I hold it to be no criticism of the dental profession that those of us who stand to-day as the teachers were inadequately trained. We did not have the opportunities, the knowledge did not exist, teachers could not, therefore, give it to us. We live in an age in which knowledge has been constantly added to, and it is a part of our duty, as it seems to me, to add to the range and fulness of the instruction which shall lead to the development of the accomplished dentist of the future. No profession which stands upon its present basis, and which does not go beyond that basis, can ever hope to rise beyond a dead level of monotonous and deathlike repetition of what has been before. We must do something better. As a naturalist I think as a naturalist, therefore I think always that evolution, progress, the going on to something higher and better than that which has ever been, is the very condition of existence, and I believe that the medical profession has gained its high position in society and that it has gone ahead for this reason, and I believe the dental profession is gaining more and more, day by day, because it too is developing a broader stand-point; it too is learning to take the scientific view of the responsibilities of each individual practitioner. The dentist can no longer be a mere mechanic. It is, I believe, the part of those who are engaged with the dental schools to contribute to the advancement of dental education.

It seems to me that perhaps the greatest of the services which President Eliot has rendered the dental school is the bringing about the union, as it is now accomplished at Harvard, of the Dental, the Medical, and the Veterinary Schools. One of the first results has been to raise the standard of entrance to the Harvard Dental School. The next great change to be required is chemistry as a condition of entrance to the school. Certainly that can have but one result,—the ultimate raising of the standard of that school until it is as high as in the highest medical school. Then, I think,

will come about the amalgamation of these two things. I am convinced that the dental profession will soon be merged absolutely, without demarcation, into the medical profession, perhaps not in one individual's lifetime, but in a short time as measured in the history of civilization and the development of a nation. That means, perhaps, not in ten years or fifteen years, but in some longer period. If we can accomplish it in ten or fifteen years, so much the better for all concerned. When this result comes about, it seems to me there is but one way in which the dental profession can take its proper place in relation to medicine. We know now there are ophthalmology, obstetrics, and gynæcology, and so on through many subjects, making altogether a long list of specialties in medicine. The very growth of medicine contributes to the recognition and importance of specialties. It becomes us now to offer to the students studies which shall be adapted to the special trend of their intellects. Students can now enter some of our medical schools, and if they feel an inclination to special subjects, pursue those alone. They can turn to ophthalmology, obstetrics, or gynæcology, as the case may be. Why not then recognize that the general medical training which gives a knowledge of the general principles of the maintenance of health is as applicable to the practice of dentistry as to that of ophthalmology or obstetrics or gynæcology. Would not that change, the full recognition of that stand-point, place the dental profession in its proper position in regard to the medical profession? It seems to me the change which President Eliot has brought to a fulfilment at Harvard must tend to that one ultimate condition, the incorporation of the dental school in the medical school. Dentistry would then be a specialty in medicine, and such it should become, and I believe that that change in the relation of the dental to the medical profession would redound to the interests of both. I could enlarge very much on this subject, because it is one that has occupied my attention. I would like to add, that when the proposition to unite the two schools was brought forward by President Eliot it seemed to me unwise and unpractical, but a more thoughtful examination of the reasons advanced by him in favor of such a consolidation convinced me that his position was reasonable, and I believe that President Eliot in advocating, and through his personal influence accomplishing, the actual consolidation of the Dental and Medical Schools of Harvard University has made a very great contribution to the welfare of the medi-

cal profession, and a contribution, it seems to me, equally great to the welfare of the dental profession. I hold that the benefit is mutual, that the union of these two schools will help each of them, and for that reason I believe that we should all recognize with gratitude the services which President Eliot has rendered to the Dental and the Medical Schools by the change which he has initiated at Harvard.

I feel great sympathy with you, gentlemen, in having to listen to my remarks. I disclaim entirely all responsibility for them. You ought to have had a wiser man, a wittier speaker, a more profound thinker, to address you this evening, because it is a rare occasion. The whole onus of the fault of calling me up should rest upon the shoulders of Professor Brackett, and I ask you, therefore, to bestow your disapprobation upon him alone, and I further ask both him and you to accept my thanks for your great courtesy and your generous hospitality.

The Rev. Dr. Gordon addressed the two societies upon "Dental Service as a Ministry to Life."

DENTAL SERVICE AS A MINISTRY TO LIFE.

BY REV. DR. GEORGE A. GORDON.[1]

Mr. President and Gentlemen,—I believe that I am responsible for the breadth of this subject, and this was my idea in suggesting it: I heard of a preacher who was in the habit of taking a whole chapter from which to preach his sermon, and when he was questioned why, he said he wanted plenty of room, because if he was persecuted in one text he could flee to another, and I thought there might be some aspect of this subject to which I could flee.

I met a dental epitaph recently which I think will interest you:

> "Here lies the body of Robert Gordon,
> With mouth almighty and teeth accord'n,
> Stranger, walk lightly over this wonder,
> For if he opens his mouth you're gone, by thunder."

Now, this brings to my mind a fact. When Matthew Arnold came to this country to lecture he found that he could not speak.

[1] Pastor of the Old South Church.

The lamented Professor Churchill, prince among elocutionists, was sent for to see what could be done with him. He said that he found that Mr. Arnold had a very sweet voice naturally, but instead of teeth he had a mouthful of bones. Now, there is one problem suggested by your profession,—What might have been done with Matthew Arnold, and what might be done with others like him?

Several references have been made to the newness of your profession, and the address of President Eliot was upon that theme. It is exceedingly strange that your profession should be new. John Stuart Mill says that theoretic inquiry is stimulated by practical interest. All science has its origin in practical interest; an urgent practical interest is sufficient to organize a new science.

Now, I have never had any experience of the pain whatever, but my friends have told me that the toothache is an urgent practical interest, and it is more than strange that this immemorial, pungent interest has been so late in organizing a scientific profession to deal with it. It is a fact, however, and how can we account for it? I think it can be accounted for by another fact, namely, that the pain of toothache has been made light of among almost all peoples. You remember what Robert Burns says in his "Address to the Toothache:"

> "When fevers burn, or ague freezes,
> Rheumatics gnaw, or cholic squeezes;
> Our neighbor's sympathy may ease us
> Wi' pitying moan;
> But thee—thou hell o' a' diseases,
> Aye mocks our groan!"

That statement corresponds to the general experience of mankind. Burns says still more in that remarkable poem. I do not think there is anything like it in all literature. It shows the humanity of the man. He belongs to your brotherhood. He indicates the terrible nature of the pain in several other stanzas. He says:

> "Where'er that place be priests ca' hell,
> Whence a' the tones o' mis'ry yell,
> And ranked plagues their numbers tell,
> In dreadfu' raw,
> Thou, Toothache, surely bear'st the bell
> Amang them a'!"

Then he has an address to his friend the de'il, to whom he talks in a jocose way:

> "O thou grim mischief-making chiel,
> That gars the notes of discord squeel,
> Till daft mankind aft dance a reel
> In gore a shoe-thick;—
> Gie a' the faes o' Scotland's weal
> A towmond's Tooth-ache!"

That is an imprecation equal to any of the Hebrew psalms.

I have indicated one reason for the recency of your profession. People did not care when their neighbors had the toothache; it was only toothache. And then, deeper than that, ignorance. They did not know that pain is a life-killer,—pain of any sort, whether it kills at once or not. Pain disintegrates the organism, it is the enemy of life. And, still further, they did not know, as we all know, that the function of the teeth is most intimately connected with health and life, and it is this immemorial ignorance and want of sympathy that account for the comparative newness of your profession. Men know better now, and they have keener and more humane sympathies, and out of these two facts, stimulated by the great scientific processes of the century bringing exact knowledge to the benefit of life everywhere, has come your profession.

President Eliot suggested to me a remark of Dr. Holmes, that theologians would have modified their views of eschatology if they had constructed their doctrine of future punishment while they were having an attack of toothache. It would be like the story that Tennyson tells of the furnace-tender who went to church and heard a terrific sermon on everlasting torment in hell fire. His wife, a sensitive, conscientious woman, feeling the rebuke of the ideal upon her spirit, feeling, as the best spirits always do, how immeasurably below their ideal they live, almost lost her reason through imagination of the torment which was probably to be hers. The furnace-tender said to her, "My dear, cheer up; 'tain't true, 'tain't true; no constitution could stand it." And it is well to take all doctrines of speculation into the vivid, instructed humane consciousness of man, and make them tell their story there, and receive such revision as will send them out upon a new mission.

President Eliot was perfectly right in speaking of the entire

newness which has come over the world when he alluded to the churches. Everything is new. The fact is, wherever you find a stationary interest, there you find a decaying interest. Wherever the interest is being pushed into commanding power and influence, there is novelty, there is renewal; and wherever this note is absent, there is retrogression.

I looked at the titles of these two societies,—the mouth, teeth, stomach, and the soul,—and I thought that the dreadful thing would be not to have a congregation with teeth, but to have one without teeth. What could you do with such a congregation? Bad digestion, eternal dyspepsia; could it issue in anything other than unhappy, pessimistic souls, impatient, impossible? President Eliot never could get a dollar for the support of the University out of such a constituency as that. Teeth are tremendous; the want of teeth still more tremendous.

I had expected that much would be said about the influence of your profession in making human life attractive. Your profession is a fine art. The fact is, everything is beautiful that is wholesome, clean, healthy, entire, and the finest features in the world are absolutely spoiled by a toothless mouth; and as a great deal of good fellowship depends upon the attractiveness of human beings to human beings, I look for a ministry to life from your profession, not simply in the cases of disease and loss, but still more in taking the children in hand and making their teeth strong and lasting as existence.

I was born in Scotland, and notwithstanding the fact that Burns wrote a poem on the toothache, there was very little toothache there then; there was very little of it until the new diet was introduced to which President Eliot referred. Toothache was never heard of in the family in which I was born. I do not think I had a dentist look into my mouth until I was thirty-five years old. No need of it. Now, if the dental profession could abolish itself in this way, what a tremendous service it would render. That is what we are all aiming at. The time is coming when there will be no need of my profession. Holiness written on the harnesses of the horses, a city without a church. Boston is, however, still a good way off from that. And a good way off from the necessary abolition of your profession.

Seriously, we speak of the coming man and the coming woman, and we speak of the coming human being, and he is our supreme

interest, and every serious worker in every high profession must occasionally lift up his eyes unto that hill whence cometh his inspiration. It is a great inspiration to think that by righteous living, by honorable and skilful service and beneficent work, something may be done to improve the quality of the human race in every respect, and it seems to me that this your profession, through generations of service, enlarging science, and growing skill, may contribute to that coming man; not in one aspect of his life alone, but through health and integrity and attractiveness and happiness, to the very highest element in manhood, character, and spirit.

Dr. E. A. Bogue, of New York, read an interesting paper entitled "The Hand the Servant of the Brain."

THE HAND THE SERVANT OF THE BRAIN.

BY DR. E. A. BOGUE, NEW YORK.

Mr. President and Gentlemen,—By making the hand serve the brain, manufacturing nations have uniformly come to the front.

In the fifteenth and sixteenth centuries Spain was the most powerful nation in Europe, and at that time the strongest in her manufactures, but she came to rely upon the force of arms for her supremacy, and adopted the Roman idea that it was demeaning to work with the hands. She discouraged handiwork and drove the Moors, her Mohammedan workers, out of her borders, while her better classes entered the army and the church. Her position to-day is known of all men; it is not magnanimous to dwell upon it. England and the Anglo-Saxon races have encouraged manufactures until the disseminated products of their handiwork may be found in the uttermost corners of the habitable globe. When, finally, the American idea was found at Versailles by the German conquerors after the victory at Sedan, Germany speedily set about organizing another victory, and this time it was an industrial one, the proof of which we see every time we read the legend, "Made in Germany."

Turning now to our own calling, we remark that in France the first steps were taken to make of us a distinct profession between the years 1306 and 1311, for it was then that the separation took place between the doctors and the barbers practising surgery, including tooth-pulling.

The beginning of so-called American dentistry was in 1775 or 1776, when Mr. Robert Woffendale, educated as a dentist by Thomas Bardmore, dentist to George III., arrived in America, so that the first American dentist was an Englishman.

Among the first who followed him was Joseph Lemaire, a French dentist; then Dr. James Gardette, another Frenchman, and then Isaac Greenwood, another Englishman, who took up his residence in Boston and made teeth for the first President of the United States, and though he did not receive the public appointment of dentist to the President, he yet became and has remained celebrated because of it.

The first dental college was chartered at Baltimore in 1839, and held its first session in 1840. From that time to this the history of American dentistry has been a history of the adaptation of means to ends, a history of constant inventions and their application in actual practice. The most distinguished men practising dentistry as a specialty have not been, as a rule, men who were graduated in medicine and failing in that took up dentistry, but men whose fingers had been taught an art the limits of which they had perceived as they undertook to practise it, and those limits had proved an incentive to further and continued efforts.

For many years the American mode of practice was either more conservative or more successful than others, for the American dentist did not hesitate to work with his hands. As a result, the American dentist abroad was sought after by those classes in society having both intelligence and money. The American dentist has not been tramelled either by the traditions of society, for he had not any, or of the medical school, for he did not graduate there, nor yet by an *esprit-de-corps,* for the "corps" did not exist, but as he had been brought up by hand to encounter difficulties and to conquer them with his hands and his head, he went right on in that same way in his chosen profession.

When he found that his calling was dignified because it was exercised upon the human body, he straightway betook him to the medical school that he might get additional knowledge.

The question, therefore, is upon us to-day, What is the best method of training a dental surgeon for his peculiar work?

Our professional colleagues in France and England have adopted different ways. France began by establishing technical schools, and had reached a point of respectable success in her teachings when a

class of men who called themselves physicians of the mouth ("médecins de la bouche") and were graduates in medicine succeeded in having such laws passed that no one could thenceforward practise dentistry in France without being submitted to an examination. The examining boards established by this law are composed of medical men. Almost immediately practical work in these French schools fell off. Instead of seeking to acquire sufficient technical skill to enable them to perform ordinary dental operations, the students set to work to acquire enough theoretical knowledge to answer the questions propounded by the medical men on the boards of examination. The clinics dwindled, and the skill of the candidates also. This comes from putting theory before practice.

Our English friends began by admitting into the College of Surgeons dental students who were able to pass the preliminary examinations. These students went through portions of the same course as that taken by the general surgeon, with divergence enough to allow them to acquire such knowledge in the dental hospital as would enable them to pass as licentiates of dental surgery, or, if they wished to rank well, and could spend the necessary time and money, they graduated as surgeons and gained the L.D.S. besides. Many of the better ones from among these students came to America to acquire the manipulative skill that they could not procure at home, until finally England passed her dental law, which resulted in keeping most of them in the home schools. It has seemed to me that the criticism of Herbert Spencer upon certain examination papers once sent to him would be very applicable to the examinations, not only of the English and French examining boards, but at the present time very largely to our own as well,—viz., "They are drawn up with the exclusive view of testing *acquisition* rather than *power*. . . . The more important thing to be ascertained is not the quantity of knowledge which a man has taken in, but the ability he shows to use the knowledge he has acquired."

In the February number of the INTERNATIONAL DENTAL JOURNAL an editorial article advocates the addition of a fourth year to the course of instruction for a dentist, and adds: "It is either four years or a reduction in the curriculum. It must be evident to all experienced teachers that we are graduating men of partial culture in many things and experts in nothing. The practical branches are suffering as never before, and this in spite of the time devoted to technical work."

Two distinguished members of the dental hospital of the London Medical School were to have been with us this evening. They inform me that after great efforts a few of the more earnest ones among them have succeeded in establishing, in addition to the theoretical instruction heretofore given, a more extended technical training in the dental hospital to which they are attached than has heretofore been attainable in England except by private tuition, so that now the English student may take his technical training with his theoretical, as the French student formerly could. What, then, considering the steps along which we have come, is the surest way to obtain a profound theoretical and practical knowledge of our calling? We are taught by the successes of American dentistry as well as by the acknowledged shortcomings in the teachings of the other nations.

It is not generally recognized that man has several ways of expressing himself, and that sculpture, architecture, and finger craft, directed by a qualified and instructed brain, are more durable forms of expression and often more productive of good results than oral speech.

He who can do a useful thing well takes delight in the doing, and he who has joy in the doing is sure to be doing well and is going on towards perfection.

How many students are graduated from our literary and professional colleges who have no means of pronouncing themselves? How many have their heads full of knowledge, but are unable to turn their hands to a single useful thing?

The cowboy graduates of Oxford and Cambridge, whom I have seen, and of Yale and Harvard, of whom I have heard, give evidence of the hiatus in our educational methods.

The feeling of strong mental powers, but of expressional helplessness, which oppresses young men just out of college would vanish if manual training had taught them how to express themselves with their hands. Manual training properly defined would result in the development of the understanding and expressing man.

I advocate, therefore, the continuation of manual training from the kindergarten to the doctor's degree, confident that, in whatever calling a man may engage, success consists in being useful to somebody else than himself. The purely selfish man will not succeed.

He who receives a suffering patient with the mental question, "How much is there in it for me?" will never acquire manual dex-

terity, though he may succeed in writing a page as illegibly as Choate himself. He will never become a great surgeon. He will never rank among the best oral surgeons.

We should commence our professional education by training the hand. We should teach the art, and with it the science which underlies that art, which enlightens the mind that practises it and guides the hand that accomplishes it, and as the mind opens more and more to comprehend the work that is being done, it will seek ways out of the difficulties that beset us in our daily work by endeavoring to understand more thoroughly the physical laws governing the tissues with which we have to deal.

Professor Egleston was unquestionably right when he insisted in the foundation of the Columbia University School of Mines that the best channel by which the mind could be enlarged and enlightened and become able to direct its servant,—the hand,—was through manual training and the complementary studies that necessarily accompany it.

In insisting upon such professional training for practitioners of our specialty, I do not wish to forget the remarks of Professor Blackie, of the University of Edinburgh, who says, "The merely professional man is always a narrow man. . . . In society the most accomplished man of mere professional skill is often a nullity; he has sunk his humanity in his dexterity. He is a leather dealer, and can talk only about leather; a student, and smells fustily of books, as an inveterate smoker does of tobacco. . . . The most exact professional drill will omit to teach him the most interesting and the most important part of his own business,—that part, namely, where the specialty of the profession comes directly into contact with the generality of human notions and human sympathies. The best preservatives against the cramping force of merely professional study are the healthy influences of society, travel, and a familiarity with great writers,—especially poets and historians,—whose thoughts 'make rich the blood of the world' and enlarge the platform of sympathetic intelligence."

We have now upon our side the recent action of the German Emperor, who has given to the three Prussian High Schools of Technology of Berlin, Aix-la-Chapelle, and Dortmund the right of conferring the degree of "Doctor Ingenieur," so that the young engineer, chemist, or architect may now have the title which in Germany is of so much value both in a professional and social sense.

This gives an added dignity to technical training, and is an acknowledgment from a pretty high authority of the value of those men who can do something with their hands.

Dean Williams, in the course of his remarks, urged the necessity of a four-year course in the study of dental medicine and the establishment of a larger number of dental infirmaries for the benefit of the poorer classes.

Hon. J. J. Myers spoke in a happy vein upon "The Commonwealth as Benefactress and Beneficiary."

Dr. J. Morgan Howe, of New York, read a paper entitled "Professional Dignity."

PROFESSIONAL DIGNITY.

BY J. MORGAN HOWE, NEW YORK.

Mr. President and Gentlemen,—We have reached a high degree of discipline in New York, and disobedience to orders is something that no one dares consider, consequently I am here to bore you in answer to this toast. It reminds me of the story of Donald the Scotchman, who, in answer to an inquiry in regard to a new neighbor, what like of a man he was, said, "He is a curious laddie. I went down to have a bit talk wi' him the ither evenin', and he offered me a glass of whuskey. He was pouring it oot, and I told him to stop,—and he stoppit! That's the kind o' man he is." Obedience to orders sometimes makes those who issue them sorry, and I am sure that those who have issued these orders to me are sorry now, or will be. But I promise you, Mr. President and gentlemen of New England, I will consider your defenceless situation at this late hour.

It is long since the immortal dramatist put into the mouth of Aragon, in the "Merchant of Venice," "Let none presume to wear an undeserved dignity;" and probably ever since that time there has been some danger that dignity would be assumed undeservedly. As civilization advances and becomes more complex its outgrowths assume the conditions and principles that underlie them, and I hold that the principles pertaining to a profession are very similar to the fundamentals of civilization itself. We remember that Emerson said, in his "Essay on Civilization," that "steam, electricity, rapid-fire guns, gum shoes, and such like evidences of intellect,

were the toys thrown off in the exuberance and exhilaration of the security and freedom of a healthy morality in society." And he said also that morality was the one essential in civilization. You, gentlemen, who hear me do not need any suggestions in regard to morals, professional ethics, or anything of that kind, but there is not one of us who is not lowered in our status by the methods of advertising that are employed in the different cities of this country. The dark-skinned drummers in uniform inviting victims into dental parlors, vying with dental departments in department stores, are inconsistent with dignity, but almost all these institutions are conducted by graduates of dental schools. It seems to show that the dental colleges of the land do not succeed in inspiring their graduates with an ambition to be more than tradesmen. The desire for material gain entirely supersedes the wish to be worthy members of a profession. We look entirely to colleges, to journals, to societies, and to laws for the means of professional elevation. I hold that no matter how learned the members of our craft may be, no matter how skilful, if their desires and aspirations are on the level of a factory, and they are willing to accept a strictly business relation to their *confrères* and the public, they are not elevating the profession, but lowering its status and detracting from its dignity. It has been reported, as a private opinion of Kipling's, that Cecil Rhodes needed no morals,—he was building an empire. I would set over against that remark an expression made by President Eliot (whom we have had the honor of claiming as a guest to-night) in an after-dinner speech in New York not long ago, when he said that the past year had been the most prosperous that Harvard had ever enjoyed, and he added, in explanation, that he meant by prosperity that the intellectual and spiritual element of the University had grown in power and strength. I think that remark is in key with our claim, that the status of educational institutions, and of professions that depend upon them for the equipment of their members, cannot be expressed in terms of a mill or factory, but in those of intellectual and moral relations. Yet our dental journals are constantly referring to what they call "professional progress" in terms that are applicable only to materials and methods.

It seems to me that there is much to be desired in ethical progress, or its equivalent, professional progress. There is no doubt in this age that scientific progress will take care of itself. The tide of material advancement of our time will carry us along

whether we will or no, but moral progress demands that we should resist the current, in which we seem to be beyond our depth; in which we have lost our footing. It seems to me that acquiescence in the influence exerted upon our moral sentiments through trade channels, and the control of our literature by corporations that are supplying us with goods, is inconsistent with true dignity. We are indebted to manufacturers for enterprise in furnishing supplies, but we ought to cut ourselves loose from them more than we have in the matter of ethics. We need, in the first place, to decline to continue to use secret preparations. Almost all of us are using preparations of which we know nothing of the composition except in a general way, and many of the colleges, if not all of them, are teaching the students to use alloys that they know only by the name of the maker. Practitioners of dentistry constitute the majority of the stockholders in a supply company that urges the sale of its secret compounds in advertisements that claim that *our make* is the only one fit to use. The corporation owns and sells patent devices, while denouncing indefinitely the abuses of patents in the hands of others. And the president of the company is an officer of the National Association. Certainly these things do not suggest professional dignity.

The commercial control of our literature is demoralizing. We may say that it amounts to nothing; that the instances are very few or unknown in which there has been any interference with a free expression of opinion. Yet the ownership and control are for commercial purposes, and they are supreme. These patent conditions, in which we acquiesce, are going on from year to year. They might be rectified by a united effort; and decision on the part of just such societies as we are would be potent to accomplish a great deal in elevating the moral tone of societies, colleges, and practitioners. In proportion as this is accomplished will we deserve a dignified position in the community.

Dr. S. E. Davenport, of New York, gave utterance to the feeling entertained by all the members of the Institute present that the meeting had been a most pleasant and profitable one, expressing in conclusion the hope that a year hence the members of both societies might come together again in a similar union meeting in New York City.

On motion, adjourned.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Wednesday evening, April 4, 1900, at six o'clock, Dr. V. C. Pond in the chair.

President Pond.—It has been truly said that all progress is marked by some mechanical invention. An ingenious person makes some little invention, apparently a trifling thing, that is developed, and in time it revolutionizes everything and enters into our movements in every way. We have the common examples of the steam-engine and the steamship and the Bessemer steel process. We have it in the electric motor, and in every application of electricity. It is especially true of the subject we have before us to-night. Every invention and every development of it has changed our knowledge, our practice, and our views in every way, and especially the lines in which we are directly interested.

It gives me great pleasure to present to you Dr. Harold C. Ernst, who will speak on "The Development of the Microscope."

Dr. Ernst then took up the subject of the microscope and its development from its first stages in the seventeenth century, illustrating by means of an elaborate series of lantern-slides the successive changes, modifications, and improvements in construction and application which it has undergone in its evolution from the most primitive form of magnifying glass, when it was looked upon merely as a plaything, to the perfect scientific instrument of the present day. Dr. Ernst's subject having been almost entirely confined to illustrations from lantern-slides, with descriptions, it is regarded as too elaborate for reproduction.

Dr. Andrews.—I do not know that I have anything to say, except that I wish to express my very great pleasure at hearing this paper with its wealth of illustrations. I have been very much interested in my trips to Washington, where I go once a year, in visiting the Army Museum, where I have seen a good many of the forms that Dr. Ernst has shown. They have one of the best collections of microscopes in this country, but the doctor has shown us a good deal more than we see there, and we are particularly indebted to him. I have enjoyed this exceedingly. I think we owe him a debt of gratitude for bringing the subject before us in such an interesting manner.

Dr. Hopkins.—Mr. President, I can only repeat what Dr. Andrews has said,—that we owe so much to Dr. Ernst for the months

and years of labor that we have had concentrated in this lecture this evening. Aside from the vast amount of information on the very important subject that he has given us, I think he has given some light as to the direction that the future progress of our profession must take. The dental profession has advanced in technical skill, so that apparently there is hardly room for improvement. There are men to-day who are doing in their offices, almost every hour of the day, operations that require so much skill, so much delicacy, that they equal, certainly in skill, the most brilliant operations that our best surgeons perform. The advancement of our profession, it seems to me, must be along other lines. Our knowledge of histology, pathology, and bacteriology will be dependent upon this instrument that we have heard so brilliantly described to-night; and it seems to me that therein lies the direction in which we must progress, and that it opens to the view of us all a new direction in which we may extend our knowledge into unknown fields; and I hope that this will have not only the practical benefit which the increased knowledge of the microscope has given us, but will lead to further research by members of this Academy.

Following the discussion upon Dr. Ernst's lecture, a paper entitled "Dental Education," by Eugene S. Talbot, M.D., D.D.S., of Chicago, was read, after which the meeting adjourned.

DENTAL EDUCATION.

BY DR. EUGENE S. TALBOT, CHICAGO, ILL.

Mr. President and Members of the American Academy of Dental Science,—I am sure you will agree that it is high time that dental education was placed upon a broader basis than now exists. It is admitted that, when the brain is concentrated upon one department of science and severed from others, it is narrowed and the important matters are neglected. This is true particularly of dentistry. The establishment of distinct dental colleges in 1840 began the narrowing of our calling. From year to year this narrowing has been going on until, to-day, we do not know whether we are a trade or a profession. Students in dental colleges look upon anatomy, physiology, materia medica, and chemistry as fads distinct from filling cavities of the teeth and crown- and bridge-work, the central notions taught in dental colleges. The tendency to

narrow specialism is strong, and, together with commercialism, narrows the profession from year to year.

The National School of Technique is the last straw upon the breaking camel's back. The central idea of preparation of cavities and filling teeth has been pushed to its extreme limit. "Measurement of cavities" and cutting away hard, sound, healthy tissue on approximal surfaces, while neglecting to remove the cause of decay, is, essentially, removing arm or leg because finger or toe is diseased.

A bill is now before Congress for the appointment of dentists in the army and the navy. Should this bill become a law, what dentist would be qualified to go to the Philippines and cope with the diseases of the mouth and jaws from which the soldiers are now suffering? To be sure, he could measure cavities, cut away good, sound tissue, and fill teeth; but what scientific status could such a man have?

Dental literature and dental societies of to-day exhibit marked evidences of lack of broad scientific principles. The jaws and teeth are intimately related parts of the general organism. Diseases which affect the body or an organ also affect the jaws and teeth, and decayed teeth and diseases of the jaws affect the general economy as a whole. With all the skill of dental mechanics, dentists are unable to arrest decay, nor will they be by the present methods of practice. Decay of the teeth is ever on the increase. Departments of medicine have already taken steps to inquire into the cause.

Interstitial gingivitis, or so-called pyorrhœa alveolaris, is more to be dreaded than decay of the teeth. Since eighty per cent. of this disease is due to systemic causes which cannot be reached by local treatment, it is no wonder that the profession are at sea as to causes and ultimate results.

The first paper upon irregularities of the teeth was written in the year 1796, yet one hundred and four years after, a professor in two dental colleges claims that it is a subject for to-morrow rather than to-day. Another professor indulges in the charlatan-like cant that it is enough for him to know how to treat the deformity, and he cares nothing for the cause. Enough, however, has been said to show that broader medical training is necessary if patients are to be treated in an intelligent manner.

There was *once* a field for narrow dental-college teaching. Such teaching in its narrow limits, however, soon becomes deteriorating.

The tendency to overtreat and overdo certain operations is now well established. Two decades ago I expressed the opinion, to which I still more emphatically adhere, that if progress was to be made in dentistry, it must be along the lines of a broad medical education.

The country is full of inferior dental colleges graduating students unfitted for practice. Better schools are kept at a lower level by the National Board of Dental Faculties because of these schools. Why such universities as Harvard, University of Pennsylvania, University of Michigan, Northwestern University, and others standing high in educational matters otherwise, allow the dental departments to fall so low is beyond my conjecture.

"The government of Belgium is considering a bill advanced by the majority of physicians to suppress the diploma of dentistry and only allow the practice of dentistry to qualified physicians as a branch of the medical sciences, like laryngology, ophthalmology, etc. Beco, the chairman of the special committee, enumerates, among the reasons for this step, the overcrowding of the medical profession and the necessity for considering dentistry as an important and lucrative specialty in the domain of general medicine. The standard that has hitherto been required of dentists has been so low that some change is imperative, and suppression of special diplomas to dentists seems the simplest and most practical solution of the question under the present circumstances."[1]

"A memorial has been presented to the Board of Management of the London Hospital, signed by about four-and-twenty gentlemen who hold, or have held, the office of dental surgeon to metropolitan general hospitals, urging that all candidates for these appointments should be required to be registered both upon the Medical and Dental Registers. There seems to be several good reasons why such a course should be adopted; hospitals require of their surgeons the possession of the Fellowship (which is, as a matter of fact, possessed by several of the dental surgeons), and there seems no reason why, in the case of a dental surgeon, they should be content with the license in dental surgery, which is the minimum qualification which entitles a man to practise dentistry. Then, again, he is concerned much more with the teaching of medical than of dental students, and he will not alone be in a better position to avail himself of cases which lie on the border between sur-

[1] Journal of the American Medical Association, February 17, 1900.

gery and dentistry, but he will teach with more authority and influence if he be qualified in medicine and surgery. The memorial, therefore, appears to be well timed and its arguments well grounded. It will, without doubt, have much weight with the body to which it is addressed." [1]

Dr. E. A. Bogue informs me that to practise dentistry in Austria one must be a graduate of medicine.

It will be seen, therefore, that there is a general feeling that the dentist should be medically educated. There are many professors and teachers, even in our university dental departments, who say that they do not believe that it is necessary for the dentist to be medically educated to practise his profession. This feeling, no doubt, is due to the fact that they have been educated along these narrow lines. Their lack of knowledge of general pathology demonstrated by their writings is a standing witness of this deficiency.

When the subject of a medical education is suggested for dentists, the old hackneyed reply is always made that too much time and money are required for the dentist to take both a medical and a dental course. Lately it has been claimed, moreover, that lengthening of the medical course of study and the necessary laboratory work make it impossible for the dentist to cover both medicine and dentistry.

Dr. N. S. Davis, the father of the American Medical Association, president of the Ninth International Medical Congress, settled these questions more than three decades ago. In responding to the sentiment offered by Dr. C. W. Spaulding, then president of the American Dental Association,—" To the president of the American Medical Association; Medicine, Surgery, and Dentistry, departments of a common science; their disciples should constitute a common brotherhood,"[2] he went over the entire field, and showed that dentistry was as much a part of general medicine as ophthalmology, otology, etc., and that dentistry should be studied as a part of general medicine. His idea was at that time, and is to-day, that all students should matriculate in the medical department and study the general branches of medicine together for a certain number of years, after which the students should take up the hospital and laboratory work which fits them for the special department of medi-

[1] British Medical Journal, January 6, 1900.

[2] Chicago Medical Examiner, September, 1865, page 576.

cine which they expect to follow. The plan is perfectly simple, possible, and the expense to the university is greatly diminished. The details, of course, must be worked out by the universities. President Eliot has suggested a similar plan, which will cover all the difficulties that stand in the way of broad medical training,—that of a "university of medicine which shall teach all that has to do with animal life in health and sickness." When this is accomplished, dentistry, with its almost perfect mechanical skill, will scientifically equal any other department of medicine. Presidents and boards of regents of universities having dental departments should nourish and strengthen this youngest and most feeble offspring of medicine until it is as robust as the other departments. When this is accomplished, scientists, medical men, and dentists abroad will look upon American dentistry as a science.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Boston, Wednesday evening, May 2, 1900, at six o'clock, President Pond in the chair.

The minutes of the previous meeting were read and approved.

President Pond.—We are to have a paper to-night by Dr. Levi C. Taylor, of Hartford, Conn.; subject, "Sanitary Condition of the Mouth and Teeth, with a Business Method of obtaining the Same."

Before presenting Dr. Taylor, who is to read this paper, I think I ought perhaps to give him away, or give away some of the information which he has given me. He admits to-night that he is the sole person who influenced our esteemed fellow-member, Dr. Brackett, to study dentistry.

It gives me great pleasure to present Dr. Levi C. Taylor.

Dr. Taylor.—Mr. President and members of the Academy, I want to express to you my gratitude at being present to dine with such a body of men as this. I consider it a very great honor to be invited to come and speak to a society of this character upon a subject of this nature, a subject, probably, of more importance than any other that is brought before the dental profession to-day. There seems to be a great difference in the opinions of men as to our mode of attaining that sanitary condition, and as one of the leading thoughts, I wish to read a very short paper to you this evening.

SANITARY CONDITION OF THE MOUTH AND TEETH, WITH A BUSINESS METHOD OF OBTAINING THE SAME.

BY DR. LEVI C. TAYLOR, HARTFORD, CONN.

The suggestions offered for your consideration this evening are based upon principles and facts with which you are all more or less familiar, but I desire to make their practical value more apparent.

Webster defines the term *dentist* as "One who cleans, extracts, repairs, or fills natural teeth and inserts artificial ones." The later editions conclude by pronouncing him a *dental surgeon*.

Harris's Dictionary, of 1867, under the head of Dental Surgeon, says, "He is one who devotes himself to the study and treatment of the diseases of the teeth and their connections."

The last definition suits our purpose, as it better describes the thought when we refer to the sanitary condition of the mouth.

That there is disease in a very large percentage of mouths at the present time it is not probable any will attempt to deny. Whether the cause is higher civilization, the use of soft foods, or is produced by a large combination of circumstances, we will not here attempt to discuss.

That it is the duty of us who assume the responsibility, to care for the mouths of our patients in the best manner, we will believe. It seems fitting, as honest and conscientious men, that we should be well prepared, and up to the teachings of our best minds. We should seek to establish a scientific truth for ourselves.

Science Dr. Elliott would probably define as "systematized facts."

If we find one or more facts that can be demonstrated at all times, we have a right to speak of the discovery as scientific; and such I believe to be the case in the practically new method of dealing with our patients.

In the teachings of the late Dr. Riggs, thirty and even forty years since, he said that if we would clean teeth well enough and as often as circumstances required, there would be no decay. Dr. Riggs was a man of more professional than business ability; consequently, he almost failed to procure for his patients the valuable results his ability seemed to indicate.

Our Andrews, our Black, and our Americo-English Williams have repeatedly shown us on the screen many fine pictures of the microbes that exist in the mouths of the human family, proving beyond question that they are present in great abundance. As far as I am aware none have given a practical suggestion how to rid ourselves of the injury of such infections. While we are fully convinced that such myriads of germ life exist, it is very apparent they are fed and nourished to a more mature form by the numerous irritations that are allowed to remain on and around the teeth. The erosion then forms sufficient to give them a good foothold beneath the enamel and until the little tendrils are sent out penetrating the tubuli. The general health structure is broken down, and then we have what is called decay.

Treating decay has attracted our attention for many years, probably being, in most men's hands, more remunerative than the earlier prophylaxis, which should be considered for the good of our patients, and, when considered rightly, may be pronounced for our good. When our patients derive a benefit at our hands, they are usually willing to share that benefit with him who is the giver.

I wish here to comment on the teachings of our schools. The first year is devoted to anatomy, physiology, and chemistry, with such infirmary practice as the cleaning of teeth. I will venture to say that the students of many schools do not average to clean one set of teeth a week, and many not more than two or three during the term.

Right here allow me to ask the question, How much time is devoted to the proper teaching of the sanitary condition of the mouth? Ask yourselves this question, How much time was devoted by any member of the faculty or superintendent of the infirmary when you were a student? and you will be surprised at the inattention, aside from the occasional assignment of a patient, allowing you to practise as best you could.

Few of the schools seem to pay much, if any, attention to this beyond the first year. The second year the student has attained sufficient dignity to make amalgam fillings, and the third year he has reached the golden age. The fourth year he has obtained his degree, but is not supposed to consider such a humble occupation as the cleaning of teeth, except when called upon especially for such service, when the teeth are whipped over five or ten minutes with the engine, and the doctor passes on for another golden nugget. I once heard a D.D.S. remark to a student that "Any fool could clean a set of teeth." I very soon learned that he who made the remark had never learned the first rudiments of cleaning teeth with any thought for the sanitary effects. He simply rubbed off the faces that they might look a little better. Such cleaning is absolutely harmful, for it deceives both patient and dentist and leads them to think they have the teeth cleaned while all the harmful part is left lurking between the teeth and under the gums, where it is best suited to do its deadly work of destruction.

I believe in the modern dental engine, and consider it an absolute necessity for many parts of our work, but I have never seen a case bearing good results in the line of thorough cleaning of the

mouth when it was used. It is simply a delusion, for it does the work open to the eye with such apparent satisfaction that we fail to go up under the gum with our orange-wood and pumice to complete the operation beyond criticism. Hand-cleaning has been proved to be the only thorough method in that line.

As regards the time necessary for cleaning a full set of teeth, thirty minutes is the minimum, when everything is favorable. As the complications increase, it will extend into hours of hard, laborious, nerve-exhausting work, for which the practitioner should be compensated at a higher fee per hour than for ordinary filling, as it is many times more valuable when considered from a pathological stand-point than any of the more common operations.

It seems desirable that our teachers of pathology should extend their time and instruction to the infirmary, and there demonstrate the results that may be obtained from modern prophylaxis.

Many of our practitioners get much information (such as it is) from the drummer who has learned for what purpose a particular instrument is designed, and he imparts such knowledge as best he can, that he may extend his sales. We are all more or less afflicted with the sample fiend, who has some wonderful germicide which he wishes us to try, guaranteeing that it will cure every known disease. He is not content with the declaration that the remedy will remove the tartar and green coating on the teeth, but he goes further, and says it will cure every known form of toothache.

How far the hypnotic suggestions of our sample men have aided in the efforts that are being put forth for more perfect sanitary results I am not able to judge. That there is such effort being made by many and in many different ways I do believe.

It is costing the profession two generations of persistent instruction to counteract the effects of such teaching as was demonstrated by the ancient practitioner, whose sole remedy for all pathological disturbances was the forceps.

Many people to-day are wearing artificial dentures, greatly to their discomfort, as the result of improper instruction given their ancestors, possibly two or three generations ago.

Here I wish to state that it is much more difficult to fully vindicate our prophylaxis theory when a partial plate is worn, as so few will keep the plates and teeth as clean as is desirable.

You will notice I have not referred to this matter under the head of Riggs's disease, or pyorrhœa. It is better to stimulate an

interest in the prophylaxis theory; and as each of us becomes thoroughly enthused over the results of these cases which we are *able to make successful,* we will feel our way on into the advanced cases with a better understanding of how far we can attain success. Too many failures have been made already by attempting to care for cases in advance of our actual knowledge as a pathologist or manipulator.

Dr. D. D. Smith, of Philadelphia, has taken great interest in producing the best results for his patients. He has been experimenting for six years along the line of prophylaxis, with such success as to have convinced several of our Philadelphia friends, who have told me personally that what he claims is true, for they have demonstrated his theory for themselves.

Dr. Smith has written some excellent articles on the subject of prophylaxis, one of which was published in the INTERNATIONAL DENTAL JOURNAL and afterwards copied into the *Dental Digest.* Another is soon to appear in the *Dental Digest.* It is not my purpose to dwell on what is contained in that article, for you can have the pleasure of reading it yourselves. It was my privilege, a little more than a year ago, to stand beside the dental chair of Dr. Smith and to have him explain each one of many cases which have been under his care for several years. I noted the practical methods that were used to bring about most excellent results.

I was interested, yes, delighted, with what I saw and heard.[1]

For more than thirty years I have been a great admirer of fine dentistry, especially the general results that have been attained, but never have I seen anything like this.

Dr. Smith informed me that he had never been able to fully obtain such results until of late years, for he was never able to have the full control of the mouth, as, he said, patients would at various times allow little matters to defer their appointments indefinitely, until the benefits he so much desired were lost.

He conceived the idea of making a yearly contract with the patient for a certain sum of money to be paid annually whether present or not, the only stipulation being that the patients should present themselves regularly each month for him to polish and massage the teeth thoroughly, at his discretion, he guaranteeing

[1] One good Quaker lady leaned forward, as the doctor was showing her mouth, and told me, with the usual Quaker modesty, "It is the best thing I have found in dentistry."

immunity against decay,—the mouth being put in perfect condition at the outset,—working on the theory that when the tooth surface is well polished no decay will take place.

The massaging will so stimulate the teeth that it in part makes up for the lack of use which nature designs.

After seeing these things, and the results that followed, I became so elated that on my return I took two of the worst mouths I had in my practice and commenced seeing the patient each month, following along the line suggested by Dr. Smith, and the results are more gratifying than I had dared hope for.

One patient told me, the other day, that she had never been half the time before without having teeth filled, and, said she, "I do not dread to come to see you any more than I dread to go down-town shopping."

The other patient told me that she really enjoyed having her teeth massaged and polished.

I now have some fifteen patients on this basis, several of whom would be willing to pay double the fee charged rather than go back to former methods.

The gums become a beautiful, healthy pink, rigid and hard, and you can crowd up under them with the orange-wood and pumice almost harshly without discomfort to or resistance from the patient.

The wisdom of this practice becomes more apparent every day, and with such success attending it, is it not reasonable that one becomes enthusiastic?

DISCUSSION.

Dr. Eames.—The hygienic condition of the mouth is a subject of great importance; it includes not only the polishing of all surfaces of the teeth, massaging the gums (and I suppose that may include instructions to the patient to do this as far as they are able), and the proper use of antiseptics, but also an inspection of the surrounding soft tissues by the dentist, an examination into the condition of the tonsils and the tongue, about which mucus will lodge and dry. A great many breathe through the mouth, and, of course, not receiving the moisture obtained when the breath enters through the nose, it dries there, forming septic masses in the crypts of the tonsils and other cavities. The effect of this upon the stomach, as well as in the mouth, is deleterious. This occurs by reason of swallowing and by means of the breath.

The means by which a hygienic condition of the mouth is ac-

Thomas W. Evans Museum & Dental Institute
LIBRARY
University of Pennsylvania

complished should be interesting, and I wish that the essayist had gone more into detail as to the methods of sterilizing between the teeth. It seems to me the proper use of nitrate of silver between some of the molar teeth and surfaces which are not exposed to view is a very important aid to sterilizing and keeping them immune from decay. It does seem to me also that an antiseptic spray directed with considerable force from a compressed-air tank will drive out from beneath the margin of the gum, and between the teeth, any accumulations. The use of a brush or scraper over the tongue is something about which we ought to instruct our patients.

Dr. Brackett.—I am very glad to acknowledge the dental fathership of the essayist to whom we have listened. We were schoolboys together among the hills of New Hampshire. He is somewhat older than myself, and his influence and success were very strong in leading me to try to learn dentistry. It was in Dr. Taylor's office that I began my dental studies, and the aid and instruction which I there received from him, and from Dr. Riggs also, who was occasionally about the office, have made an impression on me which will never be obliterated. I am always glad to testify my grateful appreciation for what I received from Dr. Taylor.

About the merits of this treatment which he advocates, I do feel very sincerely that the health of the mouth is a thing which should first occupy the dentist's attention in making an examination. I fear there have been in the past, probably more than in the present, practitioners who have construed a search for cavities to be the equivalent of an examination of the mouth. The two expressions should not be synonymous. The investigation of the general conditions of the mouth with reference to all that it presents of suggestion, for the patient's welfare, is one thing. The searching for cavities of decay and finding and caring for them is one element, one part of the whole subject. Some of us who are older have seen in past years a good many instances of people who have been from their childhood once or twice a year for examination and treatment, asking of the dentist only that he render his best service to keep the mouth constantly in good order, and in these mouths there never had been efficient cleansing. There either had been no attention whatever paid to accumulations upon the teeth, or if there had been attention paid, it was to those accumulations which were upon the visible surfaces, and they had been partially removed for the sake of better appearance.

I believe all of our young men who have gone out from our good dental schools in the last quarter of a century have gone out with an appreciation of the desirability of thorough cleansing and the efficient removal of accumulations, wherever they are or however far beneath the margin of the gum, or in whatever out-of-the way and invisible position, as well as in the prominent and visible places. I think among the patients of the gentlemen who are seated about this board it is the regular thing for a reasonable degree of general health and a reasonable degree of cleanliness to be found; but I feel there is force in that which Dr. Taylor urges, and I believe it is based upon good principles.

One of the latest presentations of what appears to be truth in the etiology of dental caries was made by Dr. J. Leon Williams a few months ago before the New York Odontological Society, and subsequently published in the *Dental Cosmos*. Dr. Williams's paper gave prominence to the idea that the harm of bacterial action comes immediately upon those surfaces of enamel to which the bacteria tenaciously attach themselves and remain. That is, that instead of general conditions of acidity as they exist in the mouth as a consequence of the existence of micro-organisms in the mouth, being the immediate cause of the disintegration of the lime salts of the enamel, it was rather apart from that general acidity. The erosion and disintegration of enamel here were consequent upon direct action produced by firmly and tenaciously adhering patches of micro-organisms. Now, if this is the truth on these points, the practice which our friend has presented appears to meet the indications, at least so far as the mechanics are concerned. Such scouring at short intervals of all enamel surfaces, labial, lingual, and approximal, as shall remove adherent masses of micro-organisms, when supplemented by constant efficient care on the part of the patient, should go far towards the prevention of caries.

Dr. Taylor has told me privately of some cases of his, one case in particular, that of a middle-aged lady, who had usually required each year quite a number of fillings in cavities that were very sensitive. That lady's mouth is one of those to which he has applied this practice, with the result that in a year no cavities have developed, and there has been a subsidence of irritated and sensitive conditions such as had never before been attained.

Dr. Fillebrown.—I would like to express my appreciation of Dr. Taylor's effort here to-night. I remember very well receiving

a very lasting impression in his office, it must have been twenty-five years ago. I called there one day to meet Dr. Riggs, and the doctor sat me down in his chair and worked over me for about three hours, and made a lasting impression. The impression made me unable to chew with any degree of comfort for a week. But it impressed upon me the importance and efficiency of his treatment.

A great deal is due to Dr. Riggs for developing a scientific practice for Riggs's disease. Dr. Riggs's ideas you will find recorded in Harris's "Principles and Practice of Surgery" years before that. I remember perfectly well doing the same thing myself and of seeing cases that my father treated years before I heard of Dr. Riggs; and still neither my father nor myself had the farsightedness to formulate it and bring it to the attention of the profession in the form that Dr. Riggs did. I am exceedingly sorry that Dr. Riggs had not a little more of the literary turn, and that he should not have put his ideas in the form of a paper and had it go on record, so that there should be no mistake and no question as to his claims to originality in the matter of developing the treatment.

I long have had patients who have done themselves as well as myself the favor to come in for every month at least, or oftener if any trouble occurs. What I say to my patients is, "If these foreign substances are not kept off the teeth the teeth surely will go to ruin, and whenever you see the gum thickening a little, or growing a little red, you may know there is trouble and you need to have treatment." Certainly teeth ought to be attended to once a month. I have in mind one patient who calls every two, four, or eight weeks, and has done so this eight or ten years. When this patient first came to me the teeth were loose and very near destruction. To-day they are firm and healthy.

I remember as long as twenty years ago or more a patient came to me with teeth standing so they looked like a Virginia fence, leaning out and in, and by the judicious use of scalers and by polishing the teeth they gradually came back into place and presented a very creditable appearance indeed.

The plan that has been described here by Dr. Taylor to-night is unquestionably the right thing. If teeth can be kept absolutely clean there is no doubt but that caries can be prevented. I am glad he is so fortunate as to have so many of his patients follow him. I wish the whole community could be of that kind, but the

fact of it is, they are not and cannot be. It is very desirable that a plan so perfect and well developed should appear, that those who are willing to be saved may be.

Dr. Bradley.—There is one suggestion that Dr. Taylor gave us, about the younger dentists feeling an ambition to work in gold and acting as though the cleansing of teeth and keeping the mouth in a hygienic condition was beneath their ambition, about which I wish to say a few words.

I remember some years ago seeing a young man, a graduate of a dental school, who presented himself to take a further post-graduate course, and there was given to him a patient, what he termed "a mere cleaning case," and he said to me, "I have taken one degree, and I know how to clean teeth. What I want to do is to fill teeth." He wanted to spend his time in filling teeth, and so on. But after some conversation, in which I in a pleasant way showed him the importance of it, he came to the conclusion that there was something to be done in cleaning teeth and getting the mouth into a satisfactory condition. Before the young man left Boston he acknowledged to some of us that he had found the necessity of doing this work in a thorough manner, not simply for the personal appearance, but that the teeth might be really clean.

There is so much cleaning done just to have the teeth look well on the surface, and not to make them clean and healthy, that I think the importance of it cannot be over-estimated in getting at the difficult places. I question whether many of us will get to see our patients once a month, but I am very sure that the more perfectly we can get our patients to keep their teeth, with our assistance, the less decay we shall have, and it is the field in which we must work, the prevention of decay, not the restoration of the part after the damage is done, but trying to prevent it as much as possible; and so to that extent I am in hearty sympathy with the sentiments of the essayist this evening.

Dr. Williams.—Dr. Taylor refers to massage as one part of the treatment he recommends. I would like to ask what was the operation of the massage in his treatment?

Dr. Taylor.—This gentleman asks the question, what I mean by massaging. To massage is to rub, as I understand it, and stimulate by friction a healthy action in any part of the body. I was talking with a physician in New York City a few days ago about this matter of massaging teeth. He said, "You may mas-

sage any part of the body, and that part that you do massage will improve materially in advance of all the other parts, and I do not know why the teeth are not susceptible to the same results."

The gentleman at the other end of the table thinks it would have been interesting if I had gone a little more into detail. But coming before a body of men of this character, it is a very difficult matter to put in black and white all the little details; it almost looks as though we were questioning their ability, and for that reason I touched as lightly as I thought advisable.

The matter of system, making yearly contracts with the patients, is simply to have them pay for something, and then they feel that they must come,—not to make a contract in the sense of the word that is so objectionable in medicine, but when a patient pays for a thing he is pretty sure to come and get it. It is the only way that you can compel them to come each month regularly, systematically, and on time; and when you do that you will get them.

I want to see those patients often enough to massage the teeth with the orange-wood stick and pumice and do all my work with that after the mouth is under complete subjection. I will say this, that it will take, in ordinary mouths, from four to eight months to get the mouth under subjection. Now, that may seem a little strange to you. If you will take a case and do the very best you can, cleaning every part thoroughly, spending hours, and then follow it month by month for six months, and note the improvement that you will get, you will be elated; it will please you. It is something that has surprised me. I had no idea that the constant systematic work would produce the advance condition of pleasure that it produces to see how the mouth improves.

These cases that I referred to in my paper as being two of the worst were not cases of Riggs's disease proper, nor of pyorrhœa; they were cases where the coating would come around the neck, and the teeth were diseased with what we call the white chalky decay. You have seen that many times around the necks of the bicuspids, very rapid decay, very sensitive, very painful to the touch. Gentlemen, if you will polish and, as I call it, "massage" (call it what you please) often enough, you will be able to nearly or quite prevent decay. In extreme cases of this kind you had better take them every two weeks for a few months. I want to say right here that I have now a patient that has been under my care for five months, the worst case of sensitiveness on the cuspids that

I ever saw. She is a poor girl. I have had interest enough in the case to say to her, "If you will come every two weeks I will do my best for you free of charge; I want to know what I can do." I will say this, that I saw her for four months before I could even touch the teeth with the stick and pumice without her just getting wild. I am getting now so that it is coming into shape and I can begin to rub them very considerably. It is painful yet, but I predict that in about two or three months more I will succeed in reducing the pain. I have tried tannic acid and an innumerable number of remedies, and not one of them seemed to have any effect. I have followed this four months, and now am just beginning to see some results. Am not yet through with the case.

Dr. Fillebrown refers to my having fifteen patients. Gentlemen, there is not a man in this room who cannot have within three years' time three times fifteen patients who will stand by him straight and square if he handles them rightly. These patients are the most appreciative that I have ever had. The results are wonderful.

As regards what he says about Dr. Riggs's treatment, his case I remember very well, some twenty-five years ago; it was an advanced case of pyorrhœa, trouble on the lower teeth; his upper teeth were not so much affected, if I remember rightly. He treated the under teeth. I am not speaking of treating the advanced cases. I want you to take this method up in your common, everyday practice, and study each case well.

It is not an uncommon thing to see mouths that have been cleaned as I had one a short time ago. A man came in and said to me, "Doctor, I have come to you because I want better work than I have been getting." I told him his teeth needed cleaning. "Why, I had them cleaned only a week or two ago," he said. "My dear sir, you haven't had your teeth cleaned in ten years." "Well," he said, "if I haven't, I want them cleaned." It was not a case of pyorrhœa at all; it was a simple case of cleaning teeth. It took me one hour and twenty minutes to finish up, after the other man had spent five or ten minutes with his engine. There was no pyorrhœa.

I want to speak of one particular case that I have followed for twenty-five years. A lady had a front under tooth where the gum had receded the full length of the tooth almost to the apex. The apex was not exposed. She commenced with Dr. Riggs twenty-

five years ago, at the time our friend was there. He treated it as long as he lived. Afterwards it came into my hands. I have followed that case once in two or three months ever since, and I am not able to see that there is one bit of progress in the disease working down. Almost every time that she presents herself there is quite an amount of the white soft tartar, but this can be almost entirely removed with the stick and pumice without an instrument. But what I want is to get at this often enough so the stick and pumice will do the whole business, and do it well. But it never will be done thoroughly with the engine because it is so deceitful. You will do what is visible to the eye, but you do not get up under the gum. A man says to me, "We could retouch it afterwards." Yes, but you do not do it. You have cleaned off the face of the tooth; you have cleaned it beautifully, and what will be the result? You won't take your stick and work up under the gum, because you haven't your guide to go by. If you do what is under the gum first with your stick and pumice, and do it well, when you are through there will be nothing left to be done with the engine.

I am well aware that in spending the time that I believe in spending it is necessary that we get a higher fee than most men are inclined to charge for such work; and that is one of the beauties of the yearly contract system, where you guarantee a mouth against decay. It is not guaranteeing against breakage,—it is not guaranteeing against a pulp that may die under a large filling that has been in the mouth fifteen to thirty years,—but it is against actual decay. It works both ways. The knife is a double-edged one. If you do not do your work well you will have teeth to fill.

As regards the fees, that is a very difficult question, and I cannot draw any line for all classes of men, because the high-priced man of the city cannot afford to work for the price of the cheaper country practitioner, and it would not be right that he should be asked to. But the basis upon which to work would be to ascertain so far as you can what you would obtain from that patient under the ordinary methods of treatment annually, not taking it some year when they have neglected it for three or four years, but what you average to receive. Make this a basis, then add twenty-five to thirty per cent., and you will not be far out of the way in making your yearly contract. You can very easily make your own estimates after you stop to think and figure along this line. This is a question that can be regulated by all of us.

I want every one to feel that they must do their work faithfully. Many first-class practitioners, so considered by the masses and by the profession, are not doing this particular work well. They are doing beautiful filling, but it would be far better for them and far better for their patients to prevent the necessity for filling. It can be done.

Subject passed.

President Pond.—You all remember a short time ago we had a very interesting meeting, made so quite largely by the efforts of Dr. Porter. Dr. Porter has kindly consented to come again and give us another paper, and I have no doubt will add another very interesting meeting to close our series for this winter.

I have now the pleasure of presenting Dr. C. A. Porter, who will give us a paper on actinomycosis about the mouth and a report of ten cases.

ACTINOMYCOSIS ABOUT THE MOUTH.

BY CHARLES A. PORTER, M.D., BOSTON, MASS.

Mr. President and Gentlemen,—I should not appear again within the year at one of your meetings if it did not seem to me that the subject of this paper was of great interest to you. In years gone by the dentist used to transfer alveolar abscesses, and similar processes about the mouth, to the surgeon for operation; now much oral surgery very properly comes into the province of the dental surgeon, and from our general hospitals more cases are referred to you every year for diseases of the jaw.

Though actinomycosis has been considered a relatively rare disease, it seems more probable that it is one which is very commonly overlooked. In its clinical aspects there is little that is characteristic. Though the course of the infection may make the surgeon suspicious, examination by microscope and culture is essential for a positive diagnosis.

The object of this paper is to attract your attention to the possibility that a proportion of the cases ranking as alveolar abscesses may be due to this specific organism, and by a few briefly reported cases to give you an idea of the disease as it affects the mouth, jaws, and neighboring regions in man. Statistics of the relative frequency of this disease are really of little value. In 1892 Illich, of Vienna, gathered only forty-two cases in man from

all that at that time were reported. Dr. Rührah, of Baltimore, has published an article in the *Annals of Surgery,* 1899, in which he has collected all the American cases, seventy-two in number, occurring in all parts of the body. In the past two years I have been especially interested in this subject, and during eighteen months' work in the out-patient department at the Massachusetts General Hospital I have found eight cases of actinomycosis in about sixty so-called alveolar abscesses examined, and four cases have been found by other surgeons. Six cases of mine have occurred within three months, and four within one week; so we may conclude, I think, that the disease cannot be one of great rarity.

I will pass about some photographs of these cases, as well as a painting of the pus from the abscesses, which shows very well the gray or grayish-yellow granules which may be found in typical cases.

I. Joseph Craven, aged thirty-two; residence, Brookline. Coachman. Entered out-patient department November 7, 1899.

Five weeks ago noticed a small lump on inner side of right lower lip; this grew larger, without marked pain, until two weeks ago, when an inflamed area was evident on the outside of the lip. Examination showed a red inflamed nodule, size of a five-cent piece, on right lower lip; the surrounding tissue was indurated to the size of a quarter; fluctuation was evident in the centre; no communication with mouth. Under cocaine a small incision was made on the inside of the lip; about half a teaspoonful of sero-pus escaped, with numerous granules, which showed the typical appearance of actinomycosis under the microscope. Simple excision was advised, but the patient would consent only to a thorough curetting through an external opening; the surface was disinfected with peroxide, painted with iodine, and packed with iodoform gauze. In two weeks the small wound had almost closed with considerable induration at the base. No colonies could be found in the discharge.

December 15, five weeks after operation, only a soft red scar remained; no induration. Whether this infection started from the inside of the mouth cannot be determined; there were no carious teeth, nor any history of a wound. Many sections of the tissue were examined, but no colonies could be found.

II. William Cowan, aged forty-five; lives in Lowell, Mass. Entered out-patient department August 29, 1899.

Two months ago stuck a toothpick under his tongue, and could not remove the whole of it. One week after this the submaxillary region began to swell. The swelling was varied in amount; no pain; tenderness slight; no interference with talking, eating, or swallowing.

Examination: In the submaxillary region on the left side is an indefinite swelling about the size of a lemon; the skin is somewhat œdematous; at the bottom of the swelling is a small area where fluctuation can be made out; over this the skin is slightly reddened. There are no glands in the neck. Under cocaine a small incision was made. Sero-pus escaped, with a few grayish granules, which proved to be actinomyces.

On the following day a more extensive operation was done under ether. Incisions were made about the involved skin, and the whole submaxillary region thoroughly cleaned from below upward. The submaxillary and a few lymphatic glands were removed with the mass. Just under the jaw a dense fibrous cord was found, extending upward to the floor of the mouth. Within this connective-tissue tube lay the remains of the toothpick lost two months before. This was removed, the flaps loosely sutured, and an iodoform wick placed to the top of the wound. Under daily packings and iodine the wound healed solidly in five weeks, without evidence of recurrence. This case shows well the common connection of actinomycosis with some foreign body.

III. Fred. Legg, aged sixteen, school-boy; residence, Cambridge. Entered out-patient department November 9, 1899.

Teeth have always been bad; has had five removed from upper jaw. Second left molar decayed for some time; two months ago a small lump appeared inside mouth about root of this tooth; this gradually grew in size, without pain, and appeared on the outside of the jaw ten days ago as a reddened semi-fluctuant swelling the size of a quarter, surrounded by a hard and firm border. Inside the mouth a distinct induration could be detected, as of a connective-tissue sinus leading from the tooth to the external swelling. There was moderate trismus; no pain; tenderness slight; no glandular enlargement. A small incision revealed several granules of actinomycosis. Under ether the edges of this wound were excised and the walls of the cavity cut away with scissors; the base thoroughly curetted and painted with iodine. No sinus could be found connecting with the tooth. The wound granulated slowly,

but was healed by December 7, when there appeared on the outer side of the scar a small fluctuating area. This was opened and curetted; in the pus no colonies could be found after very careful search.

December 20.—The induration within the mouth still persisted, but by January 2 this too had disappeared, and there was then no sign of recurrence.

At operation many granules were obtained which varied in size from a pin-head to three times that size. There was considerable soft, cheesy-looking material in the wall of the cavity. Pure cultures from this case were finally obtained by Dr. Wright.

IV. William Warren, aged thirty, West Everett; teamster. Entered out-patient department November 13, 1899.

Five months ago noticed lump inside mouth opposite last molar teeth on right. This grew larger, and becoming very painful, he went to Emergency Hospital, where it was lanced, with immediate relief. In another month abscess reformed and face swelled to the eye. After lancing no further trouble until three weeks ago, when he noticed "pimple" on outside of jaw about the middle of horizontal ramus; this grew larger, with much swelling and pain.

On entrance the whole right side of the face and eye were much swollen; trismus was well marked; over the centre of the jaw was a reddened, fluctuating lump the size of an English walnut. The surrounding tissues were very hard and brawny. This induration ended very abruptly and gave place to general œdema; within the mouth is well-marked induration from first molar to wisdom-tooth.

Under cocaine the external abscess was opened and *very* numerous granules, a hundred or more, poured out, in thin sero-pus. Some of these were unusually large, almost the size of a very small split pea.

Under ether the infected skin was freely removed, with the base of the cavity down to sound muscular tissue. Again no sinus connecting with the teeth could be found. Closer to the jaw a small cavity was found containing thick, yellow, stinking pus. The wound was dressed as before.

Within three days the swelling had much diminished and the trismus was much less.

December 10, almost a month after the operation, the face suddenly began to swell again. Under ether an abscess to the

outer side of the upper jaw was evacuated within the mouth; the pus was foul and contained many soft, yellow granules, appearing somewhat like actinomycosis, but under the microscope proved to be masses of mouth bacteria and leptothrix buccalis.

Just back of the scar of the first operation a "crater" was found, which when opened allowed the little finger to enter nearly to the lower jaw outside of the last molar; the sinus was lined with very dense connective tissue and contained foul pus. Here one or two disorganized colonies of actinomycosis were found.

January 5.—In three weeks the swelling and most of the induration had gone; the sinus was healed, and the patient in much better condition.

March 20.—Patient reported; no sign of recurrence; no induration; mouth opens normally; about the wisdom-tooth there is some exuberant gum.

In this case the focus of the disease was probably not reached until the last operation, and mixed infection undoubtedly played an important *rôle*. Pure cultures were finally obtained by Dr. Wright from the granules in spite of the contamination.

V. Herbert Grirow, aged twenty-two, 1113 Harrison Avenue.

October 10, 1899.—Five weeks ago, without toothache or external wound, a small swelling formed below the middle of the right lower jaw; there was little pain. It has grown considerably in size within the past few days. The skin is hardly reddened over it, but fluctuation is evident. From the upper part of the tumor a firm cord runs upward for one-half an inch; the whole mass is movable and seems rather superficial. Temperature 101° F.; pulse not elevated; teeth not carious. Incision showed the streptothrix colonies. Under ether the diseased skin was excised and the whole mass removed, with a small portion of the submaxillary gland which was adherent to it. No trace of sinus leading to mouth could be made out. The excised mass showed a central cavity surrounded by dense tissue, here and there infiltrated by small areas of grayish-red granulating tissue, containing the pearly granules; some of these show slightly darker centres. In the contents of the cavity were several black bodies, which under the microscope were seen to belong to some beetle. Whether this entered through the floor of the mouth and gradually worked down, or came from the tonsil or œsophagus, is not clear. A man could hardly get the body of a beetle into a wound of the face without knowing it. No

history of any external wound could be obtained. Evidently the fungus entered with the beetle. The wound was soundly healed in two weeks.

VI. Mike Clarke, aged twenty, laborer, Cambridgeport. Entered out-patient department November 14, 1899.

Three years ago patient had similar lump in the same place, which broke and went away. This swelling began a week ago as a little round, painless lump.

Below horizontal ramus of right jaw is an oblong red swelling size of peanut, which fluctuates in the centre. From this to the level of the lip the tissue is firm, swollen, and boggy. There is also some swelling over and about the submaxillary gland. Trismus is well marked; can barely open mouth one-fourth inch. On opening the small superficial abscess, a thin, sero-purulent discharge appeared with several colonies; at a deeper level, three drachms foul pus was found, without actinomyces colonies. Apparently diseased tissue; curetted thoroughly, and cavity drained after painting with iodine. In a week the œdema had disappeared and the trismus was much less. Examination of the mouth showed that the three right molars were all carious. In three weeks wound soundly healed; normal motion of jaw.

March 18.—Two months afterwards another abscess rapidly formed, which Dr. Balch opened, and Dr. Wright found to contain two typical granules.

March 25 Dr. Balch kindly asked me to see the case again. Trismus was well marked. At the site of the old scar is a small sinus from which a little bloody serum comes. The scar is dense and firmly adherent to the anterior edge of the masseter. Under the jaw are two enlarged glands. Under ether I excised the mouth of the fistula with the surrounding skin. The wall of this sinus was surrounded by very dense connective tissue, which ended abruptly at the cavity, which was lined with soft, flabby granulations. Following along this sinus an inner cavity was found, the inner wall of which was formed by the periosteum of the jaw. From this another small sinus could be traced backward for an inch and a half to the base of the second molar tooth. The whole sinus and cavity was excised and the three carious teeth removed; iodine and gauze drainage; few stitches.

In the centre of the second molar tooth a fairly characteristic granule was found, but on microscopic examination this proved

to be a mass of mouth bacteria. The sections have not yet been examined. The case is now entirely healed.

VII. John Smith.

Six months ago broke left lower jaw just anterior to masseter muscle. The bone healed, but whenever he got drunk he had soreness and swelling at the point of fracture. Once a little pus was discharged into his mouth. He came to hospital with a small fluctuating abscess just under the skin. On opening this the typical granules were found. The abscess cavity was thoroughly excised; no bare bone was found. In two weeks the wound was healed. There has been no recurrence. The natural diagnosis was necrosis after fracture; yet no dead bone was found, and thorough excision stopped the spread of the disease.

VIII. Patrick Sharkey, aged forty (Dr. G. W. W. Brewster's case).

For two years has had trouble with left molar teeth, which are carious. Has had several small abscesses opened inside the mouth. In January left side of face swelled and large abscess was evacuated. Since then there has been intermittent purulent discharge into the mouth, and jaw has been sore.

Patient entered on April 15. The left side of the face was much swollen; he could hardly open the mouth; in front of the masseter muscle, over the horizontal ramus of the jaw was a reddened fluctuating abscess the size of a walnut. This was opened and found to contain the granules.

Under ether the abscess cavity was dissected out, and a sinus found leading back to the second molar tooth; here a small piece of dead bone was found. The sinus passed between the jaw and the masseter muscle, which was also involved in the disease. The whole cavity was thoroughly curetted and cauterized, the bad tooth extracted. In ten days the patient had only a small sinus left, which was granulating in a healthy manner.

This case is a good example of the recurrent abscesses which occur until the disease has been thoroughly removed.

The infection seems to enter most frequently near a carious tooth, or is carried in by a foreign body through the mucous membrane of the mouth or pharynx. The process is essentially subacute or chronic, and the disease tends to advance by a sinus towards the skin. Infection is rarely pure, but is usually mixed with ordinary pyogenic organisms or mouth bacteria. It is rarely pain-

ful, and the accompanying pain, when it occurs, is due, I think, to the mixed infection. Clinically and under the microscope the disease is characterized by the formation of an unusual amount of dense connective tissue, which ends more or less abruptly at the periphery and infiltrates the adjacent muscle or fat. In the jaw the bone itself is rarely involved, in human actinomycosis, though it may be thickened from periostitis.

It would seem that this surrounding connective tissue could later become infiltrated by the growth of the streptothrix and break down. In all the cases I have examined the inner wall of the cavity shows a clearly cut line of demarcation between the connective-tissue wall and the lining flabby, soft, grayish-red, granulating tissue. Glandular enlargement is conspicuous in its absence, and when present seems to be due to mixed infection. Metastasis seems to occur through the blood-current and not by way of the lymphatics. In serious cases the disease may progress down the neck, into the antrum or through the base of the skull.

Though a definite connection cannot be always demonstrated, it would seem that a sinus at one time leads from the original site to the superficial abscess. In Clarke's case, for example, at the last operation such a sinus was found leading directly to the carious tooth.

Trismus, though often present, is no more characteristic of this disease than of other inflammatory affections, though if the masseter were involved in the dense connective tissue, the jaw would probably remain stiff for a long time.

It is rarely possible, I think, to make a clinical diagnosis of actinomycosis, recurrent abscesses, without necrosis; chronic, painless, subcutaneous abscesses about the jaw, evidently not connected with tubercular glands, would lead to a suspicion of this disease. If these fluctuating areas were surrounded by especially firm and hard connective tissue, and a sinus could be felt under the skin, if there was little œdema and swelling, perhaps a probable diagnosis could be made.

Examination of the discharge is of great assistance, but the mere presence of the so-called "sulphur granules" is not by any means conclusive, and no case should be considered as one of actinomycosis without competent microscopic examination. Small round masses of fibrin or tubercular *débris* sometimes stimulate a colony, in the mouth or adjacent regions. Round masses of mouth

bacteria, or leptothrix buccalis, occasionally appear very like a true colony. Even under low powers the resemblance is very similar. Dr. Wright has kindly photographed for me one of these masses, removed from Clarke's tooth. It presents a radiating arrangement, but under a higher power is seen to consist of vast masses of bacilli and the large, thick, non-branching filaments of the leptothrix buccalis.

In examining for actinomycosis gauze sponges which absorb the discharge should not be used. All bleeding, when possible, should be stopped before opening the abscess-wall. Unless badly contaminated actinomycosis pus appears usually as a clear, perhaps blood-tinged, slightly syrupy, sero-pus. Placed on a cover-glass, the granules vary in size from a millet-seed to the head of a large pin. They are usually round, with a clear-cut periphery; the color is gray or grayish-yellow, often suggesting a small pearl; the centre is not rarely somewhat darker. The surrounding pus is non-adherent and the granules can be readily removed alone. Fluid should be examined *at once*, for these granules are found with great difficulty when the blood has once clotted.

With reference to treatment, two facts speak strongly, I think, for the self-limitation of the disease in the majority of cases.

1. Though it cannot be a rare affection, few cases enter the hospital with advanced actinomycosis of the jaw, and it seems therefore certain that many recover after simple incision of the abscess, and even through a natural rupture of it.

2. It is surprising to find, on microscopic examination of sections, how infrequently the colonies are found in the walls of the abscesses, though the pus contained many granules. The surrounding connective tissue probably proves an effective barrier to the spread of the disease.

Simple opening, curetting, and drainage have proved efficient in many cases; though recurrences may be frequent, healing eventually takes place. Where possible, excision of the inner half of the abscess-wall or sinus is the best treatment. The danger from swallowing the granules, where the discharge empties into the mouth, is hard to estimate. Certain cases of generalized disease, in the lungs, intestinal tract, liver, etc., occur in which the organism gained entrance through the food, or was swallowed, and therefore the surgeon should aim at making *external* drainage. This question is often a difficult one to decide. On the one hand,

he wishes to avoid a scar on the face, especially in women; on the other, he wishes thoroughly to eradicate the disease; for with recurrence the scars would probably be worse than from a single, thorough, and clean operation. The individual case and the severity of the infection must determine the choice between curetting and cauterizing the cavity with tincture of iodine or carbolic acid and a more radical excision.

Iodide of potash, in doses of twenty grains three or four times a day, has distinctly influenced some cases for good, and should be used in connection with the local treatment.

Finally, I trust that when your attention has once been called to actinomycosis of the jaw, you will be enabled, through this brief paper, to make an early diagnosis of the disease, and I feel sure that a careful examination of chronic alveolar abscesses will show that the streptothrix actinomycotica is the cause of perhaps one-eighth or one-tenth of them.

DISCUSSION.

Dr. Briggs.—This is a very interesting paper to us, perhaps more so than we realize. As I look back a number of years I remember cases that it seems to me may have been due to actinomycosis.

I recall one case in particular that was suggested to me by Dr. Porter's treatment, from the fact that after working on this case a good deal I finally put the patient on iodide of potash, and he made better progress than he had under my surgery.

Last winter Dr. Hardy called me in consultation for a young school-girl; an examination showed a large abscess at the side of the jaw, about opposite the second molar. It was almost ready to break through the skin, and the anxiety was to prevent its breaking through and making a scar on the young woman's face. The second molar had a history of having an abscess on it, for which it had been treated. And through that tooth I tried to reach the fistula and the abscess. We only found one canal, and the case not yielding at all, and the patient being in a very low state, weak and sick, the tooth was finally extracted in order to get at the abscess better. The tooth proved to be a single-rooted tooth.

The abscess was opened, but did not yield to treatment, and the danger grew more imminent that it would break through the face. Dr. Munroe was called in consultation, and at his suggestion

a specimen was sent for microscopic examination, which proved it to be a case of actinomycosis, with the subsequent treatment and cure as described by Dr. Porter. This is a case in practice which shows that it does occur, and I have no doubt that many other cases that I can recall were such.

Dr. Fillebrown.—I want personally to thank Dr. Porter for bringing these cases before us here. They are extremely instructive, and while I haven't anything to say to-night other than this, I hope to make further use of it in the future.

Dr. Porter.—I did not intend to have you understand that I really think that this disease is a common one. When any one has a hobby, they interpret things in the light of that hobby, as I said before, and I began to think that actinomycosis must be a common thing. I do not doubt that carious teeth and roots are the cause of the great majority of alveolar abscesses; but I think it is interesting to have in mind the fact that a diagnosis can be made, and actinomycosis can be ruled out by a microscopic examination. Undoubtedly in certain cases it would be found that they were due to actinomycosis, and the surgeon would manage that case differently from what he would an ordinary abscess. I really think that thorough removal would give the patient less scars than if the disease progressed. Resort first to thorough curetting, and then if the disease returns, tell the patient that an incision would give him less trouble than simply curetting three, four, or five times.

Dr. Bradley.—I am sure that we all appreciate the opportunity of listening to two such papers as we have this evening, and I shall only voice the expression of the fellows of the Academy in moving that the appreciation be shown by a vote of thanks both to Dr. Taylor, of Harvard, and to Dr. Porter, who has come in to give us the result of his work. I move that we pass them a vote of thanks for our appreciation.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Wednesday evening, October 3, 1900, at six o'clock.

A paper was read by William H. Potter, D.M.D., of Boston, entitled "Some German Literature of Interest to the Profession."

SOME GERMAN LITERATURE OF INTEREST TO THE PROFESSION.

BY WILLIAM H. POTTER, D.M.D., BOSTON, MASS.

No one can come in contact with the intellectual life of the German-speaking nations without realizing that it is one of the greatest powers in the mental world. This intellectual life is developed by a thorough primary, secondary, and higher education, and is favored by a capacity for minute and prolonged investigation which seems to be born into the German mind. Hence the literature of such a people must always be of value to the student.

It has commonly been taken for granted that, however much the Germans, or, for that matter, all Europeans, may be looked up to in most branches of learning, in the science of dentistry little or nothing was to be learned from them. Before accepting this supposition as true, we ought to separate the science of dentistry into two divisions,—the theoretical, or intellectual, and the practical, or operative.

While it is true that the object of the science of dentistry is to produce practical operations, yet practical work is always founded upon theoretical knowledge, and can only advance with the advance of theoretical knowledge. It is not well, then, to look slightingly upon the purely theoretical side of the profession. It seems probable that the practical side of our science has been and probably always will be farther advanced in our own country than in any other place. I am not so sure, however, that we can always claim leadership in matters pertaining to the theoretical or purely intellectual division.

From the observations which I was able last winter to make in Berlin and Vienna, it seemed to me that the men who were being trained for the practice of dentistry in the universities there located were better fitted by thorough preliminary education, and through

well-conducted scientific education, to deal with the theoretical or purely scientific part of our profession than we. At the University of Vienna the dental student must graduate in medicine first, and then enter the dental department. He is a thoroughly trained scientific man, competent to undertake the most difficult scientific problems connected with the science of dentistry. His skill in the practical side of dentistry depends upon his own aptitude and inclination. No specified course is required for practical work, and there is little probability that he will acquire the technical skill which is common among the graduates of our best schools.

Let me tell you how I became acquainted with one book which I wish to present to your attention to-night. Wishing to inspect the dental department of the University of Vienna, and having no letters of introduction to men connected with it, I looked up the department in the catalogue of the University. Here I found it represented by five courses given at the "Zahnärztliches Institut," and from the catalogue I decided that Dr. Julius Scheff was the leading man. So one afternoon, just before the time at which this gentleman was put down for a lecture, I presented myself at the dental school and handed in my card. I was soon ushered into the private room of Dr. Scheff and very cordially received by him, after having introduced myself as an American dentist, and as being connected with the dental department of Harvard University. After a few minutes conversation Dr. Scheff introduced me to his assistant, Dr. Rudolf Loos.

Dr. Loos very politely showed me about the operating-rooms so that I could see the students at work, and then invited me into his laboratory. Here he brought out some very interesting sections of the upper and under jaw. These sections were both horizontal and vertical; the vertical sections included the tooth-structure as well as the bony structure, no soft tissues being included in the sections. After showing me the sections, he handed me a book which he had written on the "Anatomical Construction of the under Jaw as a Foundation for the Mechanics of Extraction."[1] And it is this book which I wish to call to your attention first.

I cannot give a better idea of the book than by going over the

[1] Der anatomische Bau des Unterkiefers als Grundlage der Extractionsmechanik, von Dr. Rudolf Loos, Assistent am zahnärztlichen Institut der K. K. Universität, Wien.

various heads into which the subject is divided. After a description of the general features of the under jaw there comes a chapter entitled "The Topographical Relation of the Alveoli to the so-called 'Plates' of the Jaw." We next come to "the relations of the alveoli to one another and to the division walls." A chapter on "A Comparison of the Vertical and Cross Sections of the Under Jaw" brings out many interesting anatomical relations of the root at different levels with the spongiosa and the outer wall plates. After the foregoing intimate study of the tissues of the inferior maxillary bone, and the position of the roots of the teeth in these tissues, the subject of the mechanics of extraction is next entered upon. Each tooth is separately considered, and from the anatomical position of the root in reference to the spongiosa and the dense outside plates the direction of least resistance is determined, and the force applied accordingly.

After a consideration of the use of the forceps as an instrument for extraction, Dr. Loos comes to a consideration of the elevator. I feel sure from personal observation that Dr. Loos has a fondness for this kind of instrument, and I have seen him use it with skill.

In concluding my remarks upon this book I wish to call attention to its thoroughness. It is intended as a guide to practical work, and yet in order to teach how to extract a tooth it begins with a minute treatment of the architectural anatomy of the lower jaw. It deals with the relations of hard and soft tissues, and the manner in which each root throughout its entire length is placed in regard to these tissues.

After having thoroughly gone over the foundation knowledge, it then applies it for the purpose in hand. To me the book has its chief interest as a study in anatomy, though its practical side is also important.

The second book which I would call to your attention is one on "The Affections of the Mouth,"[1] by J. Mikulicz and W. Kümmel. This book contains a very complete description of the pathological conditions to be found in the oral cavity. I was especially interested in reading the long chapter devoted to syphilis of the mouth, and the short chapter on the affection called "Lingua geograph-

[1] Die Krankheiten des Mundes, von J. Mikulicz und W. Kümmel, Breslau.

ica," or "Annulus migrans." This affection of the tongue is one which we as practitioners often meet, and I have no doubt often wonder as to its significance. The subject is here very completely treated and an excellent photograph of a case is given.

A third book which I will present to you to-night is upon "The Topographical Anatomy of the Head and Neck," [1] by Zuckerkandl. Professor Zuckerkandl is one of the principal men in the anatomical deparatment of the University of Vienna, and his book recently published is full of finely executed plates covering the oral cavity and all adjacent parts. Two of the dissections shown in this book I had duplicated, and brought them home with others for the teaching department of the Harvard Dental School.

The same author has also written a valuable book upon "The Anatomy of the Oral Cavity with Special Regard to the Teeth." [2] This work was published in 1891, and is a careful and complete treatment of the subject.

I am put down on the card to show a dissection of the lower maxilla, and I now present it. I had it made for the Harvard Dental School, in order to be able to show the relation between the contents of the inferior dental canal and the roots of the teeth. You will also notice a dissection of the mental nerve and artery.

There have been one or two cases reported of late where, in lancing an abscess at the end of a lower bicuspid, the mental nerve has been severed; and it seemed to me quite important to have a dissection so that we could impress upon the minds of students the conditions to be met in this region.

It seems to me that the next great advance in dental science will come from the work of the laboratory, and that therefore the scientific side of our profession is of the greatest importance. The treatment of affections of the tooth socket is, in my opinion, the greatest problem which is before us. A treatment based on pure mechanics does not suffice. The problem must be dealt with in the laboratory, by a well-equipped scientific investigator. There are men abroad in the practice of dentistry who seem to me better fitted by education to undertake such work than are we.

---

[1] Atlas der topographischen Anatomie des Menschen, von Professor Dr. E. Zuckerkandl.

[2] Anatomie der Mundhöhle mit besonderer Berücksichtigung der Zähne, von Professor Dr. E. Zuckerkandl.

DISCUSSION.

President Pond.—The subject is open for discussion.

Dr. Werner.—I envy Dr. Potter for the opportunities, and for the kindly reception that I know he would meet wherever he went in Europe. I think some men over there envied him for his opportunities for what they think we in America have. Of course, I am enough of a German, and perhaps know enough of Germany, to know that they have some very scientific men there. Their best talent there is the best talent; at least, there is none better. I think, as he does, that it is the men in the laboratories, the men who have that broad education in general medicine, who are going to be the means of advancing our specialty in years to come, further than any other class of men.

And yet I am far from one who under-estimates the mechanical, the technique, in dentis'ry. The mechanical side seems so thoroughly and comprehensively developed that the further advance must come in conjunction with bacteriology and physiological chemistry.

Generally speaking, we have a very vague idea of how dentistry is taught in European schools. My little investigations on my trips there have opened my eyes. There you cannot find a dental school as we know dental schools to have existed in America, —namely, exclusively dental schools. It would seem to them ridiculous in a dental department to teach only the anatomy of the head and neck, and to stop there; it would seem to them the essence of superficialness. Most of our dental schools in America were instituted with very limited medical instruction. Gradually they have developed a broader curriculum, so as to give a thorough training in anatomy, physiology, and chemistry.

In Austria and Germany, and practically in France and Italy and England, the "Zahnarzt," or dental physician, is a person looked up to. He cannot have the title, and cannot put on his sign "Zahnarzt," without his qualification back of it; he would be prosecuted at once, and not by a political board of examiners, as with us in America, but in an entirely different way. While I do not wish to speak slightingly of our State boards of dental examiners, I do think they are wrongly constituted, have too much power, are too much of a political force. They should be differently appointed, and they should have to undergo an examination.

The Germans have it nearer. Once examined, not by a political board, but by a board constituted of competent teachers, he is licensed to practise, not in one state, but in the whole empire. Our present board of examiners should be gradually modified in that direction.

Then I know how thoroughly up to date the Germans are in everything pertaining to bacteriology, physiology, and chemistry. In order to bring our specialty to a higher point, we will need to improve our dental education in bacteriology and physiological chemistry.

I wish Dr. Potter had spoken of many more points that would have been of interest; for I think visits like his, finding out what somebody else has and what he does not have, what he is taught and what he is not taught, is of great benefit to us. It is also a good thing for you and me to see some one else operate, to see his office, to see him do his work. We can learn something from most any one, and perhaps help him to improve in certain directions.

Dr. Baker.—Mr. President, will Dr. Potter explain how this specimen was preserved?

Dr. Potter.—It was preserved in a formalin solution while being dissected; it was sent from Vienna to Boston in a sealed zinc box. There was a small amount of formalin in the box, about half a litre, and the extra room was filled with excelsior. In Boston the specimen was transferred to alcohol. Alcohol hardens a specimen more than does a formalin solution.

In Vienna they use formalin almost exclusively for anatomical specimens. They have great tanks of it, and bring out from them for the day's lecture the required amount of anatomical material, and then put it back to remain for perhaps a year.

Dr. Stevens.—What is the significance of the fringed tongue? Does it signify any disease?

Dr. Potter.—I do not know just what Dr. Stevens means by the fringed tongue. The affection which I have called attention to under the name of "lingua geographica" has no serious signification.

Dr. Stevens.—I thought it had an important signification.

Dr. Potter.—Not what I called lingua geographica.

Dr. Stevens.—It is not syphilis?

Dr. Potter.—The book which I have quoted, "Die Krank-

heiten des Mundes," von J. Mikulicz und W. Kümmel," says that two writers relate it to syphilis, but that almost all writers say that it has nothing to do with that affection.

Dr. Stevens.—That is what I supposed.

Dr. Potter.—As I remember it, it is that way. Some have thought it was syphilitic, but he considers it rather more interesting than serious.

Dr. Smith.—Does he outline any treatment?

Dr. Potter.—The author quoted says that in such cases treatment is unnecessary.

Dr. Werner.—As I understand it, it is not "fringed tongue," but the geographical or map-like divisions the papillæ make, the little grooves that divide them into sections and pictures. I have a family where such a tongue is very distinct, and where there are no signs of syphilitic lesions in the mouth. I have seen it described in German books.

Dr. Fillebrown.—I wish to thank Dr. Potter for what he has done for the Academy and for the profession. I was familiar with the doctor's intention when he went abroad, and took a great interest in his doings while away, and the results which he has brought home justify my expectations. The literature he has brought and his interpretation of its bearing upon our wants are interesting and valuable. The problem of harmonizing and unifying science and practice is really with us a difficult one. Ours is the profession of applied science. The problem of our profession to-day is the problem of applying science. Dentistry began at the practical end of the subject, and I think there is no question but what that end is well mastered, and, as has been remarked here, our principal improvement is to be in following the paths as they are further marked out by scientific study and scientific application in the laboratory.

I remember some years ago I considered the subject of the "Influence of Culture on Professional Skill." I took the ground then, and I take the ground now, that whatever you do must first be conceived in the mind. You cannot make a figure, you cannot form a letter, or even make a straight line, until the conception is formed in the mind. There is also no question but what the doing reacts upon the mind and aids in perfecting the conception.

And so in the field of dentistry, the farther we go in our scientific applications, the better we can understand our anatomy, our

physiology, chemistry, and bacteriology, the truer will be our mental conception, and the better we can carry it out with the hand.

Subject passed.

President Pond.—The next in order of business is "Incidents of practice and presentation of specimens." Has any gentleman anything to offer?

Dr. Potter.—I do not think I can resist showing you a good syringe. I have always considered the ordinary syringe with leather packing as unfit to use; it is an unclean instrument. Nowadays people are beginning to open their eyes in regard to syringes, and are making syringes which are fit to use in the mouth.

I looked over the syringes for sale in Berlin and Vienna, and found the one which I have here to-night. The piston is entirely made of metal; it is accurately ground to the barrel, and is a satisfactory plunger. Before using the syringe the piston should be touched with vaseline or glycerin. I prefer glycerin because it washes off more easily than vaseline. This syringe can be boiled in all its parts without the slightest injury.

Dr. Baker.—There is no packing in the instrument?

Dr. Potter.—Not the slightest. I wish you would test the instrument. I have used it for several months, and therefore have more confidence in speaking of it.

Dr. Williams.—What is the metal?

Dr. Potter.—The barrel is brass and the plunger nickel.

Dr. Werner.—How often do you boil it?

Dr. Potter.—Every time I use it.

On motion, adjourned.

THE thirty-third annual meeting and dinner of the American Academy of Dental Science was held at Young's Hotel, Boston, Mass., on Wednesday evening, November 14, at six o'clock, President V. C. Pond in the chair.

About thirty-five active Fellows were in attendance. The principal guests and speakers of the evening were Mr. George A. Littlefield, of Providence, R. I.; Rev. Charles J. Ketchum, assistant rector of St. Paul's Episcopal Church, Boston; and Mr. George Martin, supervisor of public schools in Boston.

Rarely has the Academy had the pleasure of listening to a more eloquent or interesting speaker at any of its annual gatherings than Mr. Littlefield proved himself to be. His address upon "American Citizenship" was a thoughtful and scholarly exposition of the subjective and collective characteristics of the ideal American of the present day, which, as he said, "it must be remembered, is a product of four hundred years of growth out of widely varied elements."

The speaker maintained that the first characteristic of American citizenship is based upon constitutional law, and that in the framing of our separate State constitutions, with such penalties as to compel their enforcement, and the interpretation and administration of these great charters, is to be found the chief historic differentiation of America from all other countries. Our forty-four State constitutions in writing all support and are each supported by the great key-stone of the written Constitution of the United States, each preserving perfect equipoise among the legislative and judicial functions; and the touchstone of all these great documents is the perfect equality of all men under them, without the slightest hereditary or aristocratic distinction.

The value of the religious motive and of education in promoting the growth of American character and manhood was forcibly demonstrated, as well as the lessons and experiences which have come to us from the Spanish-American War, and which have brought our national ensign into the boundless respect of all nations abroad.

Mr. George Martin was next introduced, and, following along the line of thought of the previous speaker, dwelt upon the relation of education in the public schools to the work of the various professions, maintaining that it is the aim of the public school to

enable every child, whatever his inheritance may be,—material, intellectual, or social,—to get the most possible out of life and to put the most possible into life; in other words, that the strongest and best foundation for a professional life of any kind is necessarily laid in our public schools.

The Rev. Mr. Ketchum spoke entertainingly and in a general way upon the similitudes and the diversities of the clerical and the dental professions.

Previous to the banquet the following-named officers were chosen for the ensuing year: President, Dr. V. C. Pond; Vice-President, Dr. Frederick Bradley; Recording Secretary, Dr. Frank Perrin; Corresponding Secretary, Dr. George H. Payne; Treasurer, Dr. William Y. Allen; Librarian, Dr. Herman G. Hichborn; Editor, Dr. Charles H. Taft.

Executive Committee.—Drs. Forrest G. Eddy, Thomas Fillebrown, and Stephen G. Stevens.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Boston, Wednesday evening, December 5, 1900, at six o'clock.

President Pond.—To-night we have a paper by Dr. W. E. Decker on "A Case of Orthodontia diagnosed and Progress watched by the X-Ray," a subject in which I do not doubt you will be deeply interested. I have the pleasure of presenting to you Dr. W. E. Decker.

A CASE OF ORTHODONTIA DIAGNOSED AND PROGRESS WATCHED BY THE X-RAY.

BY W. E. DECKER, D.D.S., BOSTON, MASS.

MR. PRESIDENT AND GENTLEMEN,—I appreciate very much the honor of appearing before the American Academy of Dental Science, and I trust I may be able to interest you for a few moments.

Many of the details of this case of regulating are not of particular interest. The all-important point is set forth in the subject of the paper,—"A Case of Orthodontia diagnosed and Progress watched by the X-Ray."

As Dr. Angle said at Providence, a short time ago, "Many of our cases fail, or are more difficult, because of a lack of a complete and correct diagnosis." We often study them in a short-sighted way, and endeavor to correct only the most conspicuous wrong, and, of course, fail to establish a correct occlusion and harmony between the arches and in the facial lines.

"The truth, the whole truth, and nothing but the truth" is absolutely necessary for an intelligent and complete treatment. Previous to the introduction of the X-ray in dentistry the "whole truth" was sometimes impossible. But now with the skiagraph (and I hope some day with our own eyes) we are able to come very near it.

The patient was a girl fourteen years old. (Fig. 1.) The irregularity of the teeth was so great as to cause a marked deformity in the face. At first thought it would be pronounced a case of orthognothism, which, however, is only seeming. The slight protrusion of the chin is aggravated by a lack of development in

the superior maxilla. A straight line touching the frontal and mental prominences shows the nose and upper lip to be much too far back. Upon looking at the bite the cause is obvious. (Fig. 2.) Two teeth are wanting in the superior arch. There is no sign of the left cuspid, the lateral standing in contact with the first bicuspid. On the right side the cuspid stands out on the labial gum some distance above its proper position, and the lateral and bicuspid are nearly in contact. Note the absence of any prominence on the gum to suggest an impacted cuspid. As you see by the models, our landmarks, the first molars occlude almost correctly. On the left side the superior first molar occludes about one-third of a tooth distally. On the right side the occlusion of the first molars, mesodistally, is almost correct. Please note the thinness of the plate over the anterior teeth.

The cause of the deformity seems to be an inherited tendency. It is a prominent characteristic of the family through several generations. Out of thirty-five persons in the last four generations, twenty-three are afflicted and only twelve have escaped, and even in these the suggestion is evident. Fig. 3 is a model of another member of the family. It is not only an unsightly deformity, but also a severe detriment to health. The incisors of the upper arch pass far below those of the lower arch and stand three-eighths of an inch inside the proper line of occlusion. Only five teeth meet for the mastication of food. Probably this would have been the fate of our patient had not orthodontia come to her rescue.

(Fig. 4.) When the patient first presented for consideration, it was thought by the family and myself that the superior left cuspid had been extracted. Other dentists, also, were of the same opinion, arguing that the arch had fallen, the lateral hurriedly tipping into the cavity left by the extraction. There was no prominence on the roof of the mouth to show the presence of the tooth.

To improve the condition of the case without another tooth, either natural or false, was quite impossible. Therefore it was highly necessary to have positive proof of the absence or presence of the cuspid. The X-Ray quickly clears up these hidden mysteries. (Fig. 5.) And, as we see by the skiagraph, the cuspid lay deeply hidden in the bone. Its exact position is thus clearly shown. It stood at an angle of about forty-five degrees. The cusp was behind the lateral, about half-way up on the root. The

apex of the root was about an eighth of an inch directly above the second bicuspid. The skiagraph told us that it was palatal to the lateral, as the outline of the cusp is slightly clearer than that of the lateral root at the point of lapping, showing that the cuspid was nearer the film.

We took several pictures,—one with the tube farther in front of the patient, another with the tube farther back, while this one was taken directly in front of the angle of the jaw. By comparing the negatives, we further learned that the cuspid was not rotated in its pocket but lay with its labial side out. Now, you see, we had that part of the case completely and correctly diagnosed, and what would probably have always remained a mystery is thus by the aid of the X-ray fully comprehended.

As I have said before, our first molars were in about correct occlusion, so the case did not call for the retraction of the chin, although a slight movement in this direction might have been beneficial. The course of treatment was now to expand the arch somewhat, slightly rotate the left first bicuspid, protrude the left lateral and central the width of a cuspid and the right central and lateral half that width, to elongate and press into line the right cuspid, and to erupt and bring into line the embedded left cuspid, and this is how I proceeded:

I banded the first molars with adjustable clamp bands and slipped into the tubes the expansion arch under tension. Then I ligated all of the teeth to the arch in a certain rotation. First the arch was pressed up and the right cuspid ligated to elongate. Then the four bicuspids were wired to expand and the incisors to protrude. While the tension of the wire arch was elongating the cuspid and expanding the arch, the protrusion was accomplished by constantly tightening the nuts on each side, the left considerably more than the right. I did not attempt to make any speed with the case. In fact, the alveolar plate over the anterior teeth was so thin that I was compelled to go slowly in order to give nature time to build new bone. For a short time I had a band on the first bicuspid, with a small ring on the labial surface. Between this ring and the lateral I placed a small jack-screw, which rotated the bicuspid and at the same time helped to hurry forward the left incisors.

In five weeks I had the desired space, as this model shows. (Fig. 6.) Please again note the exceedingly thin anterior alveolar

plate. For this radical change I was severely criticised, some contending that the teeth protruded in an unsightly manner. And so they did, but nature and our fulcrum retainer would not leave them so. Our active labors were finished for a time. What we had done was to help or encourage nature, and the retainer was so constructed that a constant improvement would gradually go on. It was practically a lever of the first class, the lips being the power, the wire to which the teeth were attached the fulcrum, and the process the weight. The manner of the attachment was the secret of the success. The right first molar was banded with a tube on the buccal surface, as was also the left first bicuspid that had been rotated. Upon the four centrals, high up at the gum-line, were cemented gold bands, on the labial surfaces of which were small tubes that had previously been split open. A wire arch was then placed in all these tubes. As it entered those on the side teeth it fell into the open ones on the anterior teeth; then they were pinched shut around the wire, leaving the teeth to swing freely on this as the fulcrum. I wish to here point out the great advantage of this over any rigid attachment. If all the bands had been soldered together, or all soldered to the wire arch, the teeth would have had to remain as they were, which would have left the case in a bad predicament, as the protrusion was so conspicuous. As it was, however, the teeth could move freely on the wire, as a fulcrum, and the lip was the power that in a few months brought about a wonderful and gratifying change. Its pressure tipped the roots forward, the process gradually filling out at the base of the nose to a remarkable extent, giving a vast improvement to the profile. The other teeth were attached to the arch by wire ligatures for a time, and a false cuspid fastened to the arch in the new space. Broken bits of the retainer can be seen on the model.

The skiagraph (Fig. 7) taken at this time shows the cuspid unlocked from behind the lateral root and standing directly above interposed false tooth.

Here we rested for one year. During the interval I saw the patient but twice. The cuspid had not made its appearance, and we concluded to forcibly erupt it. A skiagraph (Fig. 8*a*) showed that it had started but very little, and might have erupted in a few years. However, it would be impracticable to hold the space that long. During the year I lost some of the space,—not as much

as appears in the negative, however, as this was not taken directly in front, and the shadow of the bicuspid extends into the opening.

Knowing exactly where to find the tooth, after an injection of eucaine I lanced the gum and chipped away a thin layer of process, finding a beautiful, well-developed tooth. I then drilled a small pit into the centre of it at the gingival border, threaded the cavity with a How tap, and screwed in a small post. (Fig. 8*b*.) The expansion arch was replaced and a wire ligature carried from the post down about the arch. By constantly twisting the wire, which put the arch under tension, the elongation went on rapidly. In the negative the post, arch, and twisted wire can be plainly seen. I also had a small hook thrown behind the lateral, and by screwing a nut on the arch straightened that tooth somewhat. In twenty-one days the tooth was brought down to its proper position, except that it was a little palatal to the correct occlusion. A longer-threaded post in the tooth, with a large flat nut that screwed against the outside of the arch, soon brought it labially as far as desired. (Fig. 9.)

As an acquaintance of mine often says, he would rather regulate fourteen times than retain a case. So I began to think before I found a retainer that would successfully hold the tooth in the arch. Of course, it was very loose and seemed to be hung on elastics, and would jump back the moment it was released. I made several retainers before I succeeded. The final one (Fig. 10) was a gold band around the cuspid, wide on the palatal side but narrow and under the gum on the labial surface, soldered to an adjustable band on the bicuspid, both being cemented on. To hold the expanded arch I constructed one of Dr. Baker's plates, with the small wires touching each tooth. These, resting against the incisors well up at the gingival border, acted as fulcrums, and the lips are constantly improving the position of the teeth.

The difference in the bite before and after the treatment is conspicuous. (Compare Figs. 2 and 11.) The one shows quite a normal occlusion,—at least a harmony between the arches. The impression for this model was taken recently, only four months after the completion of the work. The patient is still wearing the retainers. In a year or two from now I expect to find the position of the centrals still better and the depression at the base of the nose entirely gone.

The inside of the arch, also, shows a marked change. (Compare

Figs. 4 and 12.) It is larger in every way. All of the teeth are in their places, the general contour is graceful, and the usefulness of the arch is established. In all probability the nasal fossæ are enlarged, and the patient is less liable to have adenoids, catarrh, and other nasal difficulties.

The profile is also improved. (Compare Figs. 1 and 13.) The chin does not seem to be so prominent. The face is more balanced, and will continue to improve instead of becoming worse as she grows older, as it surely would have done without any interference.

I am greatly indebted to Dr. D. M. Clapp for the X-ray work. The films are all very good, showing much more detail than can be reproduced in a cut.

DISCUSSION.

Dr. Decker.—I shall be pleased to answer questions on any points that have not been made perfectly clear.

Dr. Clapp.—Mr. President, I want to ask Dr. Decker if the pulp is still alive in the cuspid.

Dr. Decker.—So far as I know. The question has been asked me once or twice before, as it was brought down so rapidly. I watched it very carefully and often tested it. There has been no discoloration of the tooth, and I do not think that it is injured in any way. It was very much alive when I attempted to smooth the drill hole for a porcelain inlay.

Dr. Clapp.—The last time you tested it, was it all right?

Dr. Decker.—Yes.

Dr. Baker.—I think I can appreciate something of what has been done, and also the retaining of the teeth while he was waiting for the cuspid to come down, in such a way that nature would assist him. That is the vital point of his treatment. Any one who has done considerable regulating very well knows what nature will do to assist us, if we will only give her a chance. On the other hand, if he had retained these teeth in a fixed position, he would not have attained the results he has in the time it has taken to do this. I find that in retaining teeth it is a very important thing to give nature a chance to do its work to bring the teeth to good occlusion, and one will get much better results by doing so. I wish to thank Dr. Decker again for his valuable paper. In my opinion it is one of the best papers we have ever had before the society.

Dr. Fillebrown.—I observed the one specially new point that Dr. Decker has just alluded to, and I think it is well worth our re-

membering. That is, that he leaves those teeth on a hinge, so that nature can change the position of the roots after the teeth are put in place. Dr. Decker has demonstrated that nature will regulate a root if you only give it a chance after the crowns are put in place. That seems to me a decidedly original affair, and the most so of anything that we have had before this society in a long time. I compliment him.

Dr. Andrews.—I think, as has been said, that Dr. Decker's paper is one of the best we have had presented before us. I can appreciate parts of it. Some twenty years ago I brought before the Massachusetts Dental Society the case of a lady who said that she had never had a left superior permanent cuspid. I carefully examined her mouth, and made up my mind there was a cuspid in the jaw. I had at that time no X-ray to assist me. I made an opening in the jaw, and found that there was a cuspid tooth lying in a horizontal direction, and I opened to it and proceeded a good deal as the essayist did. I put a screw in and drew it down in place, and I must have turned the tooth, I should say, more than half an inch in the jaw tissue. I brought it down in place, and the tooth is there to-day, and I believe alive, strange as that statement may seem. It was certainly alive after I got it in place. I tested that when I filled the little cavity that I had made with the screw. The screw had worked loose, and I thought it best to fill its cavity. The tooth has grown in its new position solidly. The patient was not a young person. I should say she was twenty-four years of age when the operation was performed.

Dr. Smith.—It is such an easy matter to be misunderstood, that I rise to correct—or to be set right if I am wrong—the remarks that Dr. Fillebrown made in regard to the originality of the adjustment of this appliance so that the roots would move. This is not the first demonstration that the roots of teeth, as well as their crowns, can be moved. This has been amply demonstrated in recent publications. I sometimes think that the man of to-day who regulates teeth deserves quite as much credit in selecting the proper appliance from the many different devices as if he invented any new appliance himself.

I cannot see, however, but what we would get a similar effect, so far as tipping the points of the incisors in is concerned, if we used the regular old-fashioned vulcanite plate; you would certainly get the fulcrum. With the pins resting against the teeth there is

a less amount of contact and a condition favorable for this oscillating movement.

This, Mr. President, is certainly a very interesting case. It has been handled in a most scientific way and has been presented in a most interesting manner, and shows the important strides that have been made in orthodontia.

Dr. Clapp is to show here, I believe, some negatives. One of the negatives is that of a case in which I am interested, and I thought the members might be interested to see the result in that case, and so I shall be pleased to show the models after Dr. Clapp has shown the negative.

Dr. Fillebrown.—My remarks applied to the method of retaining. Is not that a new thing?

Dr. Decker.—I have never seen that used, that I recall. I was casting about for some way of getting an arrangement upon all the teeth, yet which would not be rigid. I wanted tubes there because I wanted the teeth to swing. I did not wish to resort to Dr. Casey's method of moving the power up opposite the weight, because I did not want the patient remaining in the city so long when a fulcrum retainer and nature could be gradually doing the work for us. It seemed reasonable to me that if the arch would fall under the gentle pressure of the lips when teeth are extracted, this same pressure could be utilized in straightening teeth. The use of the tubes in this manner is certainly a very easy way of getting them in place. They were originally short solid tubes, each one opened by holding on the point of an instrument over a flame until red, then quickly pushed farther onto the tapering instrument, which opened it where it had been soldered. Then each was soldered with the back of the tube to the band, and each band set with the tube on the labial surface of the tooth. As the wire was slipped into the tubes on the posterior teeth, it fell right into the opened tubes on the anterior teeth. As I say, I do not recall ever seeing it used.

Dr. Ainsworth.—I want to add one word of appreciation and commendation of the paper. It is certainly an excellent result. One point I feel like emphasizing is the importance of doing this work slowly. We often hear of remarkable results being accomplished in a very short space of time; but I think it is a great deal better to go slowly and have the advantage of nature's assistance, which she freely gives when you work in harmony with

her. If you have a tooth to elongate, it can be accomplished in a very few days, but in doing so you are very likely to draw it out of the process, and the process and gum are very slow to come down and cover the tooth, as they would if moved gradually.

I have found it a great advantage in cases where I am expecting nature to come to my assistance in a change of the process, to carry the case part way, and then leave it for some months, or through the summer vacation, and feel that I have accomplished results that could not be accomplished if the work was commenced and kept on continuously until completed.

This case shows a wonderful accomplishment, and suggests how much cases that we meet every day in the street might be improved if the public only appreciated the possibilities.

Dr. Smith.—I would like to ask Dr. Decker if he had any trouble in controlling the bleeding while setting the post into the tooth.

Dr. Decker.—Yes, I did. I went about that in a rather slow way, also. I did not set the post the day I did the lancing. After lancing, and chipping away the bone, I discovered my tooth, and put in a tent of cotton smeared with carbolized vaseline, to wedge the gum away, and I think it was two days later that I put in the post. Then it was a very easy matter to keep the tooth dry. The gums pushed away so that I could see it quite plainly.

Dr. Smith.—Did that post show?

Dr. Decker.—The hole is under the band at present.

Dr. Clapp.—I had the pleasure of watching this case from beginning to end, and I simply wish to emphasize the fact that this is the result of Dr. Decker's zest and patience and painstaking work.

Dr. Smith.—As the pictures that Dr. Clapp will show will probably lead to more discussion of Dr. Decker's paper, I move that we pass the subject.

Subject passed.

President Pond.—I have the pleasure of presenting Dr. Dwight M. Clapp.

Dr. Clapp (showing his negatives).—Here is a case of which Dr. Ainsworth can, perhaps, tell you something interesting.

Dr. Ainsworth.—I am sorry that I have not the models of this case here. It was a case of the right central standing next to the cuspid, and the right lateral immediately under the central. In

place of the left central there were two supernumerary teeth. The left lateral was of good formation. The first question in my mind was which one of the supernumerary teeth we had best save and crown to match the other central. I did not believe, from the appearance of the case, that the other central was there; but Dr. Clapp's picture showed plainly that it was, but rather higher than the shadowgraph seems to indicate now. The two supernumeraries and the lateral which stood under the central were extracted. The belated central is now about half-way through the gums, and very much at an angle. We are just about adjusting an appliance to bring it down into place without drilling into it or in any way marring its beauty. It is a very interesting case, but the models show a clearer idea of it than I can give you. It is a case that demonstrates most beautifully the advantages of shadowgraphs in this work.

Dr. Clapp.—Here is a case of a deformed tooth. I think that this slide was made by Dr. Ainsworth, and he will be able to tell you why he made it, and the result of it. Will you tell them?

Dr. Ainsworth.—It was a cone-shaped lateral, the tooth perfectly sound, but an alveolar abscess had developed above it, and I queried whether the pulp was alive. Before photographing, I attempted to find the pulp-cavity by drilling, but failed. By the aid of the X-ray, however, I was enabled to locate it, and got well up to the apex. Later I put on a crown, which much improved the appearance.

Dr. Smith.—This model, the negative of which Dr. Clapp has shown you, shows no trace of the missing central. The lateral came inside the arch, striking inside the lower central, and the first move was to bring the lateral out. There was more or less fulness, of course, outside. Pretty soon the cuspid tooth came through, and it was at that time that I had the patient go to Dr. Clapp for the X-ray picture.

This model, No. 2, shows the cuspid directly over the lateral, and the point of the right central incisor erupting at right angles to the left central incisor. The gum was pressed back and a gold cap made to fit the point. Strange to say, that cap stayed there perfectly until I got that tooth down and turned into place. Unfortunately, however, the tooth is an entirely different shaped tooth from its mate. It is more convex on one side and more concave on the other. The negative slightly shows that the tooth is

deformed, but I did not think so much of it at the time. I was careful to tell the patient that in case this tooth proved to be a deformed tooth, it was wise to put it in place, because the pulp could be destroyed and a crown put on the root.

This model, No. 3, shows the tooth in place. The pulp of the tooth was alive at the last test. The lateral incisor, as you will see, is not in place. The next move is to bring this lateral out and move the root out, and give that fulness which will very much improve the looks of the mouth.

Dr. Hopkins.—The question of preserving the tooth alive during manipulation is spoken of as rather remarkable, but I think, when we remember the operation of nerve-stretching, we get a little light on this subject. You know frequently when the fingers become useless because of injury to the ulna nerve, the nerve is stretched, and during that stretching operation the surgeon does not hesitate to put on a pressure of forty or fifty pounds, and yet the nerve is uninjured and the patient is benefited. I think possibly the same thing happens in the more delicate nerve of the tooth, and that they will stand a good deal more stretching than we have ever thought it possible to apply without injury.

Dr. Fillebrown.—There is no tissue that is produced faster than nerve-tissue. You can sever the nerve and leave the ends a considerable distance apart. The space will fill up directly and the nerve perform all the functions of which it was capable before it was injured. So if you put a nerve on the stretch and keep it extended, it will elongate and that very rapidly. I think the trouble which so often obtains where you destroy the pulp by moving the tooth will be found in cases where the tooth is tipped and the nerve pinched. If you pinch it, you will produce strangulation, and of course a dead pulp. But so long as you keep the apex of the root free and clear from any pinching, and simply stretch it by moving the tooth, the nerve-tissue will be produced quite as fast as any of the other tissues. I think that is the true explanation of it, and why we can now do so much without menace to the life of the pulp.

Dr. H. A. Baker.—I did not fully appreciate the advantages of the X-ray in dentistry until quite recently. Something like six months ago a dentist brought his daughter, also models, to me for my opinion in a case of orthodontia. In place of a left lower second bicuspid was a temporary molar, and it was impossible to

tell whether the bicuspid was beneath the molar or not. I advised him to go to Dr. Clapp and subject it to the X-ray, which he did, and yesterday he sent me a photograph of it which shows no indication of an approaching bicuspid. Had we extracted the temporary molar on the supposition that the bicuspid was beneath, it would have been bad practice. Now that the X-ray has shown there is no bicuspid, our way is clear, for the molar is perfectly sound and solid in its place, and in my opinion we will obtain much better results by letting it remain than to have no tooth there at all.

Subject passed.

INCIDENTS OF PRACTICE.

Dr. Brackett.—I had a little incident of practice this afternoon that pleased me. A young lady came from school at two o'clock to keep an appointment of an hour and a half. We had a storm of sleet, and she came without rubbers, with damp feet, and sat down in my chair in a very uncomfortable and unsafe condition. Seeing her uncomfortable, I was uncomfortable myself, and I turned over in my mind several plans for trying to help her. Finally, I remembered that I had in the house an electric foot-warmer that for its operation simply needs connection with any lamp-socket. I made a connection, put the little flat stove on the foot-rest of the chair, and very soon her feet were getting dry, and she was warm and comfortable. The cost of this electric heater was about six dollars. They may be procured of any dealer in electrical apparatus, and are convenient and serviceable wherever electricity is installed.

Dr. Andrews.—I have one of these little copper gas-stoves, and just at the foot of my chair I place it in cold days, to warm the feet. I find it very comfortable and very fine. It not only warms the patient's feet, but it dries the clothing.

On motion of Dr. Smith, a vote of thanks was extended to Dr. Decker for his very scientific paper.

CHARLES H. TAFT, D.M.D.,
Editor American Academy of Dental Science.

INDEX.

PAGE

LIST OF OFFICERS, 1900–1901 3

REGULAR MEETINGS:

March, 1900 5
April, " 27
May, " 33
October, " 57
November, " 65
December, " 67

PAPERS:

The Newness of Dentistry. By CHARLES W. ELIOT, LL.D. . . . 5
Dentistry in its Relation to Medicine. By DR. GEORGE S. ALLAN, New York 9
The Union of Dental and Medical School. By DR. C. S. MINOT, Boston, Mass. 11
Dental Service as a Ministry to Life. By REV. DR. GEORGE A. GORDON 15
The Hand the Servant of the Brain. By DR. E. A. BOGUE, New York 19
Professional Dignity. By J. MORGAN HOWE, New York 24
Dental Education. By DR. EUGENE S. TALBOT, Chicago, Ill. . . . 28
Sanitary Condition of the Mouth and Teeth, with a Business Method of obtaining the Same. By DR. LEVI C. TAYLOR, Hartford, Conn. 33
Actinomycosis about the Mouth. By CHARLES A. PORTER, M.D., Boston, Mass. 46
Some German Literature of Interest to the Profession. By WILLIAM H. POTTER, D.M.D., Boston, Mass. 57
A Case of Orthodontia diagnosed and Progress watched by the X-Ray. By W. E. DECKER, D.D.S., Boston, Mass. 67